

Chapter 1

Purpose and Need

1.0 Introduction

The Kelsey Whiskey Landscape Plan and Resource Management Plan Amendment Draft Environmental Impact Statement (DEIS) presents an array of actions and evaluation of potential environmental impacts that might be anticipated if implemented. The planning area contains valuable resources, including the Wild Rogue Wilderness to the west, the Rogue Wild and Scenic River Corridor through the center, Late-Successional Reserve, and critical habitat for northern spotted owls and marbled murrelets. In consideration of these values, the broad spectrum of management proposals will be analyzed in an environmental impact statement (EIS).

The planning area is located about 26 miles northwest of Grants Pass, Oregon (Map 1). It lies within the Wild Rogue Watershed, for which existing conditions and ecological functions were analyzed in the Wild Rogue North Watershed Analysis (1999) and the Wild Rogue South Watershed Analysis (2000). Most of the watershed is managed by the Bureau of Land Management (BLM). The public lands within the planning area are designated as Oregon and California (O&C) lands.

1.1 Purpose and Need

Timber harvest is a primary objective in lands designated in the Northwest Forest Plan as General Forest Management Area (GFMA), some of which the Kelsey Whiskey Landscape Planning Area includes. The planning area was identified along the boundary of the Wild Rogue Watershed. In order to meet annual forest management requirements, the Glendale Resource Area needs to develop and implement plans for harvesting trees, restoring sites, conducting forest health treatments, and reducing fire hazards.

There is a growing need for management actions to reduce fuel hazard in the planning area to avoid large losses of valuable resources. In 1995 a federal fire policy (USDA 1995) was issued directing federal land managers to expand the use of prescribed fire to reduce the risk of large wildfires due to unnatural high fuel loadings and to restore and maintain healthy ecosystems. The use of prescribed fire is a management tool that would assist in meeting the objectives of conserving,

protecting and restoring values for which have been identified throughout the planning area.

Thinning forest stands is needed within Late Successional Reserve lands, where stewardship and forest health are a primary focus, to reduce risk of catastrophic stand replacing wildfire, promote retention, and enhance late-successional forest habitat characteristics. The purpose of the actions related to thinning includes increasing the diameter growth of residual trees to promote development of larger diameter trees, snags and coarse woody debris, reducing competitive stress to larger diameter trees, and reducing ladder fuels.

The Medford District Resource Management Plan (RMP) has the objectives of providing new special areas to protect important values, preserving native species composition and ecological process of biological communities, and developing site-specific management plans for special areas as needed (RMP pg 56). Within the planning area, the East Fork Whiskey Creek subwatershed has been identified as an area with multiple resource values converging in a single location. Since the completion of the RMP, a plant group has been found to fill a heretofore unfilled plant cell in the Oregon Natural Heritage Plan. In addition, there are historical, cultural and scenic values that add to the quality of the subwatershed and merit protection for future generations. Historic trails, mine adits, mine tailings and remnants of structures as well as the unroaded character of the basin, undisturbed by timber harvest and seemingly wild and natural are some of the factors. The 34-8-1 road marks the eastern boundary of the basin and is currently a designated Back Country Byway to Marial. There are several vista opportunities along this route that provide very good looks into the East Fork Whiskey Creek as well as into the Rogue Canyon in the distance. In addition, the vegetation composition and quality of the ecological processes in several areas within the subwatershed provides an opportunity to replace an existing cell with a higher quality vegetative community for the Oregon Natural Heritage Plan.

The Bureau of Land Management (BLM) is mandated to balance production of timber with numerous management concerns. The Oregon and California (O&C) Act of August 28, 1937 (O&C Act) requires the Secretary of the Interior to manage O&C lands for permanent forest production in accordance with sustained-yield principles. Further, the Act requires that management of O&C lands protect watersheds, regulate stream flow, provide for recreational facilities, and contribute to the

economic stability of local communities and industries. FLPMA directs the BLM to manage public land on the basis of multiple use and “in the manner that would protect the quality of scientific, scenic, historic, ecological, environmental, air and atmospheric, water resource, and archeological values.”

1.1.1 Federal Land Policy and Management and National Environmental Policy Acts

This DEIS has been prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 et seq) and the Federal Land Policy and Management Act (FLPMA) of 1976, as amended, section 202 (C). As required by FLPMA and NEPA, the BLM has used an interdisciplinary approach and has provided, and will continue to provide, opportunities for public involvement and interagency coordination. In addition FLPMA requires land use plans to:

- ☐ Consider multiple uses of resources with a sustained yield objective.
- ☐ Give priority to the designation and protection of Areas of Critical Environmental Concern.
- ☐ Consider the present and potential uses of public lands
- ☐ Consider scarcity of values involved
- ☐ Rely on public land inventories
- ☐ Comply with pollution-control laws

1.1.2 Oregon and California (O&C) Act of August 28, 1937

The alternatives presented in this DEIS have been formulated in compliance with the O&C Act, which requires the Secretary of the Interior to manage O&C lands for permanent forest production, and in accordance with sustained-yield principles. Further, the Act requires that management of O&C lands protect watersheds, regulate stream flow, provide for recreational facilities, and contribute to the economic stability of local communities and industries. Lands administered under the O&C Act must also be managed in accordance with other environmental laws such as the Endangered Species Act and the Clean Water Act.

1.2 Relationship of the Draft EIS to BLM Policies, Programs, and Other Plans

The guidelines outlined in BLM NEPA Handbook, H-1790-1, provided the framework for this DEIS. The alternatives were developed with reference to, and in compliance with, the forest management standards and guidelines of the Medford District Resource Management Plan (RMP), 1995. Certain impacts associated with managing BLM lands were previously analyzed in the RMP/EIS. This DEIS will tier to that analysis, and provide more site specific analysis as needed. More detailed references to specific tiering will be made under individual sections of analysis.

The RMP, FLPMA, NEPA, and other mandates provide the direction for the preparation of this Landscape Management Plan. Within this guidance, many decisions still remain about how best maintain, protect, restore or enhance relevant and important values within the planning area and address major issues surrounding management.

This DEIS is tiered to the Medford District Resource Management Plan (RMP). Two of the alternatives would require an RMP amendment to fully approve and implement. If changes in land use allocations or management direction occurs as a result of this EIS, this analysis and decision making process would meet requirements of the Bureau's regulation for RMP amendments found in 43 Code of Federal Regulations 1610.5-5. Since the authority to approve RMP amendments cannot be re-delegated to the field or district manager levels, any proposed changes in the RMP must be elevated to the OR/ WA State Office for review and approval by the State Director.

This DEIS is tiered to the U.S. Department of the Interior, Bureau of Land Management, Western Oregon Districts Transportation Management Plan, 1996, updated 2001.

In 1998, BLM Medford District completed a record of decision (ROD) for its Integrated Weed Management Plan (EA OR-110-98-14) which was tiered to the Northwest Area Noxious Weed Control Program EIS (March 1987). This DEIS is tiered to that EA and decisions made in that ROD are not readdressed in this document.

This DEIS is tiered to BLM's 1989 Western Oregon - Management of Competing Vegetation EIS for analysis of impacts of vegetation management activities on human health, and all other impacts from the use of herbicides, in management programs other than noxious weed control. The decisions made in that ROD are not readdressed in this document.

This DEIS is tiered to the Record of Decision for the BLM Oregon Wilderness Study of October 1991.

1.3 Proposed Action and Alternatives

This DEIS is specific to Public Land management (Map 2) and will address activities on private and other non-federal lands within and near the planning area only insofar as they relate to cumulative impacts. Three action and the no-action alternatives were analyzed in detail. Each of the three action alternatives emphasizes a variety of concerns and issues identified through internal and external scoping and project development. The legal requirements and directives governing the planning process were considered in determining the range of management alternatives. Implementation of any one of the action alternatives could occur over several years.

The proposed action and alternatives are presented with Project Design Features (PDF) for a range of management treatments. The actions proposed include timber sales, road decommissioning, road construction, fuels treatments, forest health treatments, wildlife habitat enhancement projects, and a proposal to amend the Medford District Resource Management Plan to include designation of a new Area of Critical Environmental Concern (ACEC) and Research Natural Area (RNA). Direct, indirect and cumulative effects are described relative to issue and alternative.

1.4 Issues for Developing and Comparing Alternatives

For planning purposes, an "issue" was defined as a matter of controversy, dispute, or general concern over resource management activities, the environment, or land uses. These issues provide a focus for environmental analysis and a basis for resulting decisions. The four primary issues described below were identified through public scoping and internal evaluation, and further supported by the Wild Rogue Watershed Analysis (North and South). Additional issues are addressed to provide context for the analysis and resulting decisions.

1.4.1. Issue 1: Fuels and Fire

Accumulation of fuels and resulting risk of intense fires was identified in the Wild Rogue North Watershed Analysis and through several comments received from the public. It is a complex issue, involving several factors. Hazardous forest fuels in the form of dense stands of small conifers and hardwoods occur in some portions of the planning area. Minimal management activity and fire suppression have also resulted in greater risk of catastrophic or stand-replacing fire. Large areas with little or no road access, along with the very steep, rugged terrain, limit fire suppression in portions of the planning area. Some primary roads expose areas to greater risk of fire.

The Wild Rogue Watershed Analysis process identified the growing risk of catastrophic wildfire in the area, which has been subject to fire suppression for decades. Much of the planning area is currently dominated by dense stands of young conifers and hardwoods, creating heavy fuel loadings and ladder fuels which have the potential for carrying fire into the canopy. The planning area has many high value resources, including late-successional habitat, Riparian Reserves, habitat for federally listed threatened or endangered species, commercial timber lands and recreation areas. There is a need for management actions to reduce the fuel hazard in the planning area to avoid large loss of these valuable resources. Fire plays an important role in

many forested ecosystems, including those within the planning area. This DEIS includes proposals for beginning to reduce the hazardous fuels, as well as to conduct some prescribed underburns to begin to reintroduce fire into the processes within the planning area.

The action alternatives present a variety of treatments to reduce hazardous forest fuels, especially on ridge tops and along major roads. The Record of Decision (ROD) would identify which of these fuels treatments would be implemented, where they would occur, the means by which the fuels would be treated and the time lines involved for implementation.

1.4.2 Issue 2: Late-successional Habitat

Late-successional habitat is defined here as late-successional forest that provides habitat to late-successionally affiliated species. The forest seral stages of mature and old-growth age-classes comprise late-successional habitat.

Late-successional habitat has been a topic in virtually all land management activities since the development of the Northwest Forest Plan (NFP). The NFP provided a network of Late-successional Reserves to “maintain late successional and old growth species habitat on ecosystems on federal lands” (NFP ROD Pg B-1), providing the necessary habitat for the long term viability of affiliated species. In addition, “forests in the matrix function as connectivity between LSRs and provide habitat for a variety of organisms associated with both late-successional and younger forests” (NFP ROD pg B-1,2). Since late successional reserves will take several years to develop all of the characteristics of late-successional habitat, activities in the matrix may result in short term (10-20 years) impacts to late-successional habitat and affiliated species.

One of the most important findings of the Watershed Analysis was that connectivity between the Fish Hook/Galice LSR and others in southwest Oregon is a concern because of past timber harvest in matrix lands. “Once species depart this watershed to the east, they encounter the Grave Creek watershed. In the Grave Creek watershed, east-west connectivity is difficult because of timber harvest on private and federal land;” and “connections to the north are also checkerboarded and include some heavily harvested private ownerships” (Wild Rogue North Watershed

Analysis, 1999 (pg 80)). Currently the areas of connectivity within the watershed appear to be functioning well, but proposed treatments may alter this.

Commercial timber harvest often removes or degrades late-successional habitat, so there is potential conflict. Conversely, some treatments, such as commercial density management often benefit late-successional habitat and create merchantable timber volume as a by-product. Road construction, underburning and other management activities have the potential for adversely affecting late-successional habitat and the plants and animals which are affiliated with older forests. Conversely, protection measures for late-successional habitat and individual species sites often create difficulties in managing for timber, roads, fuels and other resources.

1.4.3 Issue 3: Timber Management

Another key component of the NFP and RMP is providing commercial timber harvest from lands designated as General Forest Management Area (GFMA) lands; it is one of the main objectives for GFMA lands. One of the purposes of this Draft EIS is to examine the consequences of potential timber harvest in this area. Specific proposals for commercial timber harvest from GFMA lands are included in all of the action alternatives, to varying degrees. The areas and intensities of harvest vary among the alternatives to address different objectives. All alternatives are consistent with RMP guidance. The No Action Alternative addresses the option of postponing timber harvest, but even under this alternative, it is assumed that timber harvest would occur on these GFMA lands in the future, since that decision was made in the RMP.

Commercial timber harvest is a major objective for GFMA lands and is an integral component of the NFP. In this planning area, proposals for timber harvest are greatly affected by protection measures for late-successional species and habitat. The scarcity of roads in some areas also have an impact on how the land may be managed for timber. The values some people place on large, undeveloped tracts of land could have a major impact on timber management practices in this planning area. Protection of Visual Resource Management (VRM) resources around the Wild and Scenic Rogue River might, also, effect timber management practices.

The ROD will identify where and how timber might be harvested over the next several years. It will also identify whether fuels treatments and treatments to promote late-successional habitat will be implemented, which could lead to a commercial timber product, including biomass for potential energy generation.

1.4.4 Issue 4: Roads/ Transportation System

The presence or absence of roads is also a complex issue for this planning area. Some areas have high road densities and others have none (Map 2). Portions of the road system were constructed for timber harvest or primary access and are no longer needed. Others need to be upgraded or repaired. New temporary or permanent roads are needed for timber harvest and have the potential to lead to further development of the area. Many of the existing roads were constructed decades ago and require increasing maintenance, while maintenance budgets are declining.

Some of the public have stressed the importance of maintaining areas without roads or other developments for recreation, wildlife and aesthetic values. The planning area includes the Zane Gray area, once examined for potential wilderness designation. The BLM did not recommend to Congress that this area be designated wilderness, although some people still advocate its designation. Regardless of a wilderness designation, during the scoping process some people commented that the area deserved to be maintained without any road construction.

The ROD would identify which roads, if any, would be constructed, decommissioned, gated or improved. It would also identify whether an ACEC would be designated, which would further affect road development.

1.4.5 Other Issues

There are a few water sources in the planning area which provide a unique habitat type. These are relatively rare due to the steep terrain, which makes them all the more valuable as a scarce resource. Some of these sites no longer hold water or are only filled during a short time of the year. There is a need to improve the water-holding capacity of these ponds to make them more effective in providing wetland habitat. Proposals for enhancing the

habitat features at these sites are included in all the action alternatives.

Public interest was expressed in protecting undeveloped areas for dispersed recreation, as well as for the intrinsic values associated with natural systems without human-caused changes. With these issues identified, an Area of Critical Environmental Concern (ACEC) was proposed in two alternatives. The ACEC would include both Late Succession Reserve and General Forest Management Area lands.

Since the completion of the Medford District Resource Management Plan, a plant group has been located that would fill a heretofore unfilled plant cell of the Oregon Natural Heritage Plan (ONHP). The area representing a sample native plant community consists of 91 acres surrounded by steep terrain within the East Fork Whisky Creek subwatershed.

The ROD will identify whether an Area of Critical Environmental Concern (ACEC) would be designated, and whether a Research Natural Area would be designated for the protection of the Tanoak-Douglas fir moist with evergreen huckleberry, salal and dwarf Oregon grape, and if so, the acreage.

1.5 Management Common to all Alternatives

There are several other important issues raised during scoping which are of concern to the public, but which have been addressed in the Medford District's RMP, or are governed by existing laws and regulations. Because management of these issues has already been determined, management alternatives for those issues are not presented in depth in this EIS. These issues are discussed in further detail in the "Management Common to All Alternatives" section in Chapter 2.

- Management of Noxious Weeds
- Management of the Wild Rogue Wilderness Area
- Management of Fire Suppression Activities
- Management of Prescribed Fire
- Management of Archeological Sites
- Management of Special Use Activities

- Management of Riparian Areas consistent with the Aquatic Conservation Strategy
- Management of Fish and Wildlife (including hunting and fishing) by the State of Oregon
- Management of the Rogue Wild and Scenic River Corridor
- Management of Acquired Lands

1.6 Planning

Public Scoping

An interdisciplinary planning team was formed in the Summer of 1999 to begin an inclusive planning process designed to develop management proposals for the project area. The public scoping period began with publication of the Notice of Intent to produce an EIS, Federal Register Volume 64, No.108, Pg.30353, June 7, 1999. Two information mailings and three public meetings were held to help identify significant issues. A complete outline of the scoping process may be found in Chapter 5.

Availability of this Draft EIS is to be announced in the Federal Register and in local media. Publication of the Notice of Availability opens a comment period for the public to submit comments on the draft. During this period, public meetings would be held in locations and times announced in the letter accompanying this document and in local media.

Planning Criteria

Planning criteria ensure that plans are tailored to identified issues and ensure that unnecessary data collection and analysis are avoided. The criteria are the standards, rules and measures used for data collection and alternative formulation which will guide the final decisions. They are based on applicable law and regulations, BLM manual sections, policy directives, public comments, and coordination with other Federal, state and local governments, and Native American Indian tribes.

Criteria used in developing the Kelsey Whiskey EIS:

- The EIS would be completed in compliance with FLPMA and all other applicable laws, regulations, and Bureau of Land Management policies.
- The Kelsey Whiskey EIS Interdisciplinary Team would work cooperatively with the State of Oregon, tribal governments, county and municipal governments, other

Federal agencies, and all others interested groups, agencies and individuals.

- The planning process would include an Environmental Impact Statement that would comply with National Environmental Policy Act standards.
- The EIS would emphasize ecological and science-based management of the resources within the EIS area. It would also identify opportunities and priorities for research and monitoring related to key resource values.
- The EIS would recognize valid existing rights within the planning area.
- The EIS would address transportation and access, and would identify where better access is warranted, where access should remain as is, and where decreased access is appropriate to protect and manage resources.
- The EIS would identify plant communities and address their health and possible restoration.

What is next in the Planning Process

Target date for completion of the Kelsey Whiskey EIS is the autumn of 2002, after analysis and consideration of public comments on the draft.

The Record of Decision (ROD) is expected to be completed by winter of 2002/2003.

1.7 Decisions Proposed in the EIS

This Draft EIS provides a broad array of decisions to be made concerning major resource issues, especially in the action alternatives (alternatives 1, 2, and 4). The most important decision areas include:

- Amendment to Land Use Plan (ACEC)
- Forest health projects and treatments
- Timber management area designations
- Transportation system activities
- Fuels management areas and treatments
- Wildlife habitat enhancement projects

Multiple decisions, based on the analysis in the EIS, would be made to implement specific management actions over a period of years. Some actions, if selected, may be ready for implementation immediately following the publication of the Final EIS, including low impact actions such as paving some existing roads or installing gates on short, dead-end spur roads. Other actions may require more pre-disturbance surveys or consultation with other agencies or other parties before implementation could occur. The latter may be the case with major timber sales.

A Record of Decision (ROD) will:

- 1) identify whether fuels treatments would be implemented, where they would occur, the means by which the fuels would be treated and the time frame for implementation,

- 2) address whether to designate an Area of Critical Environmental Concern, how large, and any associated management direction,
- 3) address whether to modify timber sale proposals or fuels treatments to reduce impacts to late-successional habitat and species,
- 4) identify where and how timber would be harvested in the planning area over the next several years,
- 5) identify whether fuels treatments and treatments to promote late-successional habitat would be implemented.

Chapter 2 - Alternatives

2.0 Introduction

The Draft Environmental Impact Statement (DEIS) for the Kelsey Whisky Landscape Plan and Proposed Resource Management Plan Amendment addresses specific management actions proposed to be implemented within the next several years. In most cases, no additional analysis under the National Environmental Policy Act (NEPA) would be required. The DEIS presents four alternatives, including a No Action Alternative.

2.1 Summary of Alternatives

Two alternatives present a change in land use allocation with the proposal of an Area of Critical Environmental Concern (ACEC). If one of these two alternatives was selected, an amendment to the Medford District Resource Management Plan (RMP) would be required. Such an amendment would occur in conjunction with a Record of Decision (ROD) associated with these proposals. Each of the three action alternatives present proposals at the activity level including timber harvest, fuels reduction, road construction or decommissioning, forest health treatments, and habitat improvements. While the analysis area includes the entire fifth-field watershed, the proposed management actions are located north of the Rogue River, in the Glendale Resource Area.

Alternative 1 would emphasize timber harvest on General Forest Management Area (GFMA) lands, consistent with the objective in the Medford District Resource Management Plan (RMP) to provide a sustainable supply of timber and other forest products (RMP pg 72).

Alternative 2 would designate a new Area of Critical Environmental Concern (ACEC). This alternative would also emphasize timber harvest on GFMA lands, but would modify timber harvest from alternative 1 to help maintain connectivity for late-successional species and would include no new permanent road construction.

Under alternative 3, the no-action alternative, routine management actions would continue to occur, including fire suppression, road maintenance and plantation maintenance. Actions requiring an

environmental assessment or environmental impact statement would occur only after appropriate NEPA analysis was completed.

Alternative 4 would emphasize commercial timber harvest only where it would benefit wildlife habitat, fuels management or forest health. A new ACEC would also be established under alternative 4, larger than the one described under alternative 2.

Under each of the action alternatives, proposed activities might be implemented soon after the Record of Decision was signed. Additional management actions within this planning area can be anticipated to be proposed in the future, at which time they would be analyzed in compliance with NEPA.

Table 2-1 presents a summary of the actions and effects to land use allocations under each alternative. Appendices 2 and 3 present a summary of the specific management actions and projects which would be implemented under each alternative. Appendix 2 also contains a description of harvest methods proposed within the action alternatives.

2.2 Alternatives considered but eliminated

Substantial changes in basic land use allocations were considered which would modify existing Late-Successional Reserve (LSR) and General Forest Management Area (GFMA) boundaries. The primary objectives in altering the existing land use allocations were to improve management by placing the LSR/GFMA boundaries along major ridge tops in the watershed, to enhance LSR function while still maintaining commercial timber availability, and to keep the same relative proportions of GFMA and LSR acreage. This alternative would have emphasized timber harvest on the modified GFMA lands, with both commercial and non-commercial forest management treatments occurring throughout the planning area. An amendment to the Medford District Resource Management Plan (RMP) would have been required to support this alternative.

This alternative was analyzed in some detail but was found, in the end, to not be implementable while remaining in compliance both with the Northwest Forest Plan (NFP), the RMP and the

Endangered Species Act. Currently, marbled murrelet critical habitat in the planning area, further protected by LSR designation, is managed in such a way to not interfere with the potential nesting by marbled murrelets. If the site were to be modified to GFMA status, regeneration harvest might be considered a harvest technique, but would have the potential to interfere with nesting practices of the marbled murrelet. Potential harvest activity on GFMA would, then, have to be restricted to maintain consistency with the intent of critical habitat under ESA, but would then be inconsistent with the intent for GFMA under the NFP and the RMP. This alternative can no longer be considered viable and is, therefore, not a reasonable alternative.

Several comments were received during the scoping process suggesting that portions of the planning area should be either designated as wilderness, or receive some other protective designation to restrict road construction, logging and other activities. In 1979 and 1980 a substantial portion of the planning area, both North and South of the Rogue River, was reviewed for possible addition to the National Wilderness Preservation System. Ultimately this area was not so designated, with that decision being appealed to the Interior Board of Land Appeals and affirmed for BLM. A second possibility was to consider some other large scale protective designation to maintain the roadless quality of the area. Making wilderness or other protective designations for thousands of acres would represent a larger scope of activity than had been originally envisioned to be accomplished over the next 5-7 years. In keeping with the scale of the actions proposed herein, however, an Area of Critical Environmental Concern (ACEC) designation supporting some of the same values is analyzed under alternatives 2 and 4.

2.3 Management Common to Alternatives # 1, 2 and 4

Project design features for projects in the Medford District are specified in the RMP, including Best Management Practices (BMP) (RMP Appendix D). For ease of reference, many are included below.

The following issues provide a focus for identifying project design features, environmental analysis and

a basis for resulting decisions. Key issues and additional issues of interest are presented which allow for a broad understanding of the proposed actions and their scope.

Key Issues:

- a) Fire and Fuels
- b) Late-Successional Habitat
- c) Timber Management
- d) Roads/Transportation System

2.3.1 Fire and Fuels

Fuels Treatments

An array of treatments designed to reduce hazardous fuels is proposed for the project area. The type of treatment utilized is dependent on existing and projected fuel loadings, existing vegetative conditions, slope and access. Proposed treatments include manual and mechanical methods in combination with prescribed burning. Burn piles would be kept at least 50 feet from streams.

In 1995 a federal fire policy (USDA 1995) was issued directing federal land managers to expand the use of prescribed fire in order to reduce the risk of large wildfires due to unnatural high fuel loadings and to restore and maintain healthy ecosystems. The use of prescribed fire is a management tool that would assist in meeting the objectives of conserving, protecting and restoring values for which have been identified throughout the planning area.

Fuels have accumulated within the project area, due to the absence of fire, which precludes single entry fuels treatment. The energy released from prescribed fire as the initial entry would exceed desired intensity levels and have undesirable effects on vegetation and soil. Therefore, a combination of mechanical or manual treatments with prescribed fire is necessary to insure all resource objectives are met.

Manual treatments would generally consist of hand cutting of existing ladder fuels (brush and saplings) and then hand piling this material so it can be burned. In some cases, dense stands of small conifers would be thinned to space out the stems and reduce the chance of crown fires. Mechanical treatments would utilize the use of a "slashbuster" machine which uses a rotating cutting head mounted on a tracked excavator with a reach of approximately 30 feet and would be limited to slopes less than 50%. Prescribed fire treatments would consist of hand pile burning, underburning or

broadcast burning. These treatments may be utilized as an initial treatment or as a follow-up treatment to further reduce the accumulation of slash and natural fuels across the landscape.

Future underburns may also be implemented to help maintain the stand and prevent a future build-up of fuels. These underburns would be light treatments and help maintain the reduced fire hazard following the initial slashing and pile burning treatment. Typically, maintenance underburns would occur 2-7 years following the initial treatments but would be driven by the condition of the stand and regrowth of slashed vegetation.

If conditions warrant, fuels treatments might be reexamined at any stage of treatment to determine current applicability. At the discretion of resource specialists, planned treatments may be refined to better meet the objectives outlined in this DEIS.

Mechanical fuels treatments that entail stem removal would be limited to trees less than 11 inches diameter at breast height (dbh) to assure maintenance of potentially suitable northern spotted owl habitat.

Fire Suppression

The Bureau of Land Management has a master cooperative fire protection agreement with the Oregon Department of Forestry (ODF). This agreement delegates the responsibility of fire protection of all lands within the planning area to the Oregon Department of Forestry. This contract directs ODF to take immediate action to control and suppress all fires. Their primary objective is to minimize total acres burned while providing for fire fighter safety. The agreement requires ODF to control 94 percent of all fires before they exceed 10 acres in size. Under all Alternatives, full fire suppression tactics would be utilized to minimize the size of any wildfire. Areas within the planning area which require special suppression methods designed to minimize damage to unique habitat and resources would be limited to the proposed East Fork Whiskey Creek ACEC under alternatives 2 and 4.

Air Quality

Prescribed burning operations would follow all requirements of the Oregon Smoke Management Plan and the Department of Environmental Quality Air Quality and Visibility Protection Program. Prescribed burns would be conducted within the limits of a burn plan which describes prescription

parameters so that acceptable and desired effects are obtained. Smoke produced from prescribed burning is the major air pollutant of concern.

National Ambient Air Quality Standards for PM_{2.5} have been established to protect human health. Due to the lack of monitoring data for PM_{2.5} these standards have yet to be implemented. It is estimated that by year 2003 that monitoring data for PM_{2.5} will be completed. When standards are implemented for PM 2.5 all burning proposed within the CSNM will comply with these standards.

Administration of Smoke Producing Projects

The operational guidance for the Oregon Smoke Management Program is managed by the Oregon State Forester. The policy of the State Forester is to:

1. Regulate prescribed burning operations on forest land.
2. Achieve strict compliance with the smoke management plan.
3. Minimize emissions from prescribed burning.

For the purpose of maintaining air quality, the State Forester and the Department of Environmental Quality shall approve a plan for the purpose of managing smoke in areas they designate. The authority for the State administration is ORS 477.513(3)(a).

ORS468A.005 through 468A.085 provides the authority to DEQ to establish air quality standards including emission standards for the entire State or an area of the State. Under this authority the State Forester coordinates the administration and operation of the plan. The Forester also issues additional restrictions on prescribed burning in situations where air quality of the entire State or part thereof is, or would likely become adversely affected by smoke.

In compliance with the Oregon Smoke Management Plan, prescribed burning activities on the Medford District require pre-burn registration of all prescribed burn locations with the Oregon State Forester. Registration includes specific location, size of burn, topographic and fuel characteristics. Advisories or restrictions are received from the Forester on a daily basis concerning smoke management and air quality conditions. These advisories or restrictions insure that burning done by the Medford BLM is in compliance with standards set for particulate matter.

2.3.2 Late-Successional Habitat

Commercial density management treatments within the Late-Successional Reserve would only be implemented in stands less than 80 years of age and would maintain a minimum of 60 percent canopy closure.

In all regeneration or overstory removal harvest units, guidelines for snags and coarse wood would conform to the December 11, 2000 Memorandum of Understanding by the SW Oregon Provincial Interagency Executive Committee (PIEC), which defines levels of snags and downed wood by plant association. As some site conditions seem to preclude achieving the standard levels, all non-hazardous snags would be retained in all harvest units. If it is necessary to fall snags for safety reasons, they would remain on site as down wood. All naturally occurring dead and down woody debris, greater than or equal to 16 inches dbh, currently present in all units would remain on the site and would not be removed.

Retaining green trees, snags, and large down logs would be emphasized during layout, marking, and timber harvest. Sufficient trees would be marked for retention to allow for losses. If trees, snags, or logs are inadvertently knocked down or disturbed during logging they would be retained on site.

Spotted Owl

No treatments would take place in the 100-acre northern spotted owl activity centers. Spotted owl surveys would be conducted in the spring of the year timber sale units are planned to be logged, prior to logging activity, to ensure owls have not moved into the unit. If hatching year (fledgling) spotted owls are known or suspected within or immediately adjacent to a project area, the project activity would be delayed until June 30th or until a biologist determines that young have sufficiently dispersed. In addition, work activities which have the potential to disturb nesting spotted owls, including tree falling, yarding, slashing, burning, road construction and renovation, and use of chain saws or other power equipment, would not take place within 1/4 mile of known spotted owl sites between March 1 - July 1. At a minimum, this would affect the following Units: California Gulch Units 22-1, 23-1, 26-2, 26-3, and 26-4; Meadow Creek Unit 29-1; West Fork Whisky Unit 9-3; Upper East Kelsey Units 1-1, 1-2, and 6-5; Mari-Kelsey Units 26A, 26A1,

27-3, and 27-4; and Lower Marial Unit 2-1B. Other units may also be limited depending on survey results. These Project Design Features (PDFs) may be waived in a particular year if nesting or reproductive success surveys conducted according to the Fish and Wildlife Service-endorsed survey guidelines reveal that spotted owls are not nesting or that no young are present that year. Waivers would be valid only until March 1 of the following year. Previously known sites or activity centers would be assumed occupied unless surveys indicate otherwise.

Marbled Murrelet

Timber sale units which would remove or degrade suitable marbled murrelet habitat within the sale area and located in Marbled Murrelet Area B (up to ten kilometers east of the hemlock zone) would be surveyed for marbled murrelets to protocol standards (2 years) before the sale is sold. These units include Mari-Kelsey Units 23A1, 26A, 26A1, 27-3, 27-4, and 33-1. and Upper East Kelsey Units 35-1 and 35-2. If occupancy behavior of marbled murrelets is documented during the surveys, reinitiation of formal consultation with the Fish and Wildlife Service would be required, and the site would be managed with a 1/4-mile no-cut buffer. If an active murrelet nest is located within or adjacent to a project area, the project activity may be delayed until September 15th or until a biologist determines that no young are present. This PDF may be waived in a particular year if nesting or reproductive success surveys conducted according to the FWS-endorsed survey guidelines reveal that marbled murrelets are non-nesting or that no young are present that year. Waivers are valid only until April 1 of the following year.

Work activities within 1/4 mile of suitable unsurveyed habitat which have the potential to disturb nesting marbled murrelets would have daily operating restrictions from April 1 - August 6, confining operations to between 2 hours after sunrise to 2 hours before sunset.

Survey and Manage and special status species

Pre-disturbance clearance surveys would be conducted for Survey and Manage and special status species according to established protocols before any decision is made concerning implementation of any ground disturbing activities. Known sites would be managed and protected according to the approved Regional Ecosystem

Office management recommendations. All active raptor nests would all be protected as specified in the February 8, 1999 Instruction Memorandum No. OR-99-036.

Northern Goshawk

If a northern goshawk nest is located, it would be protected with a 30 acre nest core area and no activity would be allowed within 1/4 mile from March 1 - July 30, or until a biologist has determined that nesting is not occurring or that the juveniles have sufficiently dispersed.

Peregrine Falcon

Peregrine falcons would be protected from human disturbance, including disturbance from prescribed fire activities in California Gulch Unit #2-2, from Feb. 1-Aug. 15.

Bald Eagle

The active bald eagle nest located in the Alder Creek drainage would be protected from human disturbance within one-half mile of the nest, consistent with RMP direction. This applies specifically to California Gulch units #27-1A, 27-1B, and 28-1B, in which post-harvest canopy closure would be at least 60%, and no co-dominant or dominant conifer trees would be removed. There would be no new road construction in these units. No project activities, including prescribed fire, would occur from February 1 - August 15 within one-half mile of the nest.

Red Tree Vole

All active Oregon red tree vole sites, either individual nest trees, or a collection of active and inactive nest trees within 100 meters of an active nest tree, would receive a 10-acre minimum no-cut buffer, or a minimum one acre per nest tree, whichever is greater. Due to susceptibility to heat and smoke which penetrates tree crowns, burning of hand-piled material will not occur within 50 feet of red tree vole nest trees.

Great Gray Owl

If a great gray owl nest site were to be detected, a 1/4 mile no-cut buffer would be established around the known nest site.

Vascular Plants, Lichens and Bryophytes

Pre-disturbance surveys would be conducted for Survey and Manage Categories A and C, and special status, lichens, bryophytes and vascular plants. No fungi surveys are required in this planning area. Survey and Manage and special status plant sites would be protected by retaining vegetation in no-cut buffers. Buffers would be at least 100 feet wide with 200-foot buffers in regeneration and overstory removal units that would retain less than 40 percent canopy cover. The objective would be to maintain adequate micro-climatic conditions to allow the plant populations to persist.

2.3.3 Timber Management

Timber harvest would be planned on lands within the EIS area to assist in meeting land management objectives. Harvests and subsequent followup treatments would be consistent with management direction and Standards and Guides in the RMP and the Northwest Forest Plan. Timber would be harvested under the auspices of one or more timber sales. If several timber sales, they would occur during the 5-7 years following the Record of Decision.

Standard Project Design Features (PDFs) and management direction would be incorporated into the design of timber harvest, as called for in the RMP (e.g., green tree retention, coarse woody debris retention, restrictions on harvest seasons, protection measures for special status species). In addition, the following PDFs would apply:

Directional Falling

Directional falling toward the lead would be required to minimize damage to residual trees and conifer regeneration in all Overstory Removal (OR), Commercial Thin (CT), and Commercial Density Management (CDM) units. Directional falling away from streams would be required within one tree length of Riparian Reserves.

Yarding

Lateral yarding would be required on all cable-yarded OR, CT, and CDM units. Yarding carriages would be required to maintain a fixed position on the skyline system during lateral yarding. Cable yarding in CT and CDM units would not be allowed between March 1 and June 15 to lessen bark slippage on residual trees. All trees to be cable yarded in OR, CT, and CDM units would be limbed and cut into

lengths not to exceed 35 feet prior to yarding to minimize damage to residual trees. Cable yarding lines would be respooled when changing yarding corridors. Overstory Removal units would be required to be yarded within four weeks from commencement of falling operations to minimize damage to the residual stand. Landings would not be located within Riparian Reserves. Tractor yarding would be restricted to designated skid trails.

To lessen the spread of blackstain disease, roadside brushing would be done between June 15 and September 15.

For harvest units with a proposed site preparation treatment of slashing and hand piling, the work would be completed within three months following completion of logging.

Follow-up treatments (outside of timber sales) designed to achieve BLM stocking standards would be conducted on Regeneration Harvest and Overstory Removal harvest units following site preparation or fuels treatment. Treatments may include: tree planting, below ground fertilization (usually concurrent with the planting operation), mulching, shading, tubing, maintenance brushing and release brushing.

Sale or use of Special Forest Products (SFPs) would be allowed throughout the planning area where harvest would not prevent the attainment of land use allocation or Aquatic Conservation Strategy objectives.

Proposed Riparian Reserve widths were calculated based on site potential tree heights measured in each of the timber harvest planning areas and range from 150 to 180 feet wide. Riparian Reserve width seeps and springs would be 100 feet.

2.3.4 Roads/Transportation System

Routine road maintenance would continue to occur across the Kelsey Whisky Landscape Planning Area, depending on needs and available funding.

Logging, burning and other activities would be designed and implemented so that traffic on the Mt. Reuben and Marial roads would not be blocked for more than 30 minutes at a time. Local residents would be notified of any planned activities which might restrict interfere with traffic to their property.

2.3.5 Forest Health

Proposals for vegetation treatments designed to promote forest health include a wide range of practices which overlap considerably with management actions primarily designed for timber harvest, fuels reduction or wildlife habitat enhancement. Forest health proposals are designed to:

- restore naturally functioning forest systems,
- reduce the risk of large-scale insect and disease damage brought on by abnormally dense stands resulting from decades of fire suppression,
- promote native plant populations and communities, such as the open pine stands, meadows and serpentine openings which are being crowded out by dense stands of young Douglas-fir, white fir, and
- restore Douglas-fir stands to areas in the Quail Creek burn which were planted with ponderosa pine.

In addition to the use of timber sales to meet forest health objectives, non-commercial treatments would also be conducted. Non-commercial density management treatments would include girdling or thinning young conifers and hardwoods and disposing of the slash where necessary, by either underburning, hand-piling and burning, or through lopping and scattering. This non-commercial treatment would often extend into the Riparian Reserves, but not within 25 feet of a stream.

Treatments designed to improve forest health within the California Gulch area would occur under all action alternatives.

Treatments to improve vigor and maintain large pines (both sugar and ponderosa) in the West Fork Whisky Creek subwatershed would occur under all action alternatives.

Approximately 221 acres of the Quail Creek burn would be treated to begin to move the area back to a more natural Douglas-fir community from the current unnatural, dense ponderosa pine stands resulting from planting after the fire (units 2-1, 2-1A and 2-3). The treatment would consist of thinning the pine stands to allow for release of existing Douglas-fir trees and in areas to allow for the planting of Douglas-fir seedlings where none exists. Over most of the area, the pines are too small for a commercial product or yarding would not be economically feasible. In this situation, the pines

would either be cut or they would be girdled and left standing. Hand piling of slash followed by burning of piles would occur.

2.3.6 Soils and Watershed

Temporary road construction would be constructed to minimum width necessary for safe operations. After site preparation is accomplished the road would be obliterated and planted back to conifer species suited for the site. All new permanent roads would be winterized by use of armored water dips or similar functional structures such as outsloping the road prism to minimize erosion. Ground which is disturbed during road construction and decommissioning would be mulched prior to the onset of fall rains. New road construction would occur only between May 15 and October 15 of the same calendar year to minimize erosion.

When replacing bottom-lay culverts (stream channels) streams would be diverted around the work site whenever reasonably feasible in order to limit movement of sediment off-site during the low flow period. The diverted stream would not be returned to the channel and allowed to flow through the project site until all in-stream work has been completed.

Road renovation and maintenance on natural surface roads would be restricted to the dates prescribed for hauling. If the roads are deemed too wet (road surfaces are deforming and road damage or sediment production is likely) during a designated haul season (inclusive of the start and end dates), hauling would not be allowed until approved by the Field Manager.

To prevent damage to roads and potential for stream sedimentation, log or rock hauling would only be allowed during the following periods:

Paved roads	- All year
Rocked roads	- April 15 to November 15
Native surface roads	- May 15 to October 15
New construction	- May 15 to October 15

Helicopter landings would be constructed and used in the same season. The landings would be ripped following logging and planted. The helicopter landings would only be rocked if it is necessary to prevent erosion and movement of sedimentation to streams. All landings which are used for timber harvest would be ripped and mulched and planted with conifers following harvest.

In all tractor yarding units, tractor blades would not be used. This provision would ensure minimal soil displacement and would help to retain the organic material on site. Where tractors are used for yarding, existing skid roads would be used if present. Skid roads used in this timber sale would be discontinuously ripped and water-barred to reduce erosion. Water bars would be installed at the same time as ripping.

All activities within the planning area would conform to the Aquatic Conservation Strategy as outlined in the Northwest Forest Plan (Appendix 11).

Broadcast burning would be done under spring-like conditions to minimize the loss of soil organic material and minimize damage to reserve trees.

Heavy equipment would be washed before moving into the project area to remove soil and plant parts to prevent the spread of noxious weeds into the project area.

2.3.7 Land Acquisition

Land acquisitions resulting in land tenure adjustments for all land use allocations would occur when opportunities to conserve biological diversity or to promote land management on federal land exist. BLM ownership in the planning area would be consolidated, where possible, to improve management of all natural resources. Land would be acquired only from willing owners. Newly acquired lands would be designated the same as the adjacent land use allocation (RMP pg. 98).

2.3.8 Cultural Resources

All sites found during the cultural resource survey were flagged during the survey process. The BLM would protect each site in place. Cultural sites would be rechecked for flagging prior to any activity. If actions were to impact a cultural site, the BLM might mitigate the impacts through excavations, collections, test pits, or other methods. The BLM would educate contractors prior to activity about the laws and regulations regarding historic and pre historic sites.

To mitigate possible damage or impact to cultural sites the following measures would be followed in areas of timber and silviculture management activities:

- Sites would be protected by directional falling of timber away from the site.
- One end suspension logging techniques would be used to pull logs perpendicularly over trails.
- Trails would be crossed where the impact would be the least.
- Logging equipment would not travel along a trail bed, but cross trails perpendicularly.
- Tractors would be kept at a distance from sites.

Methods of mitigating the impact of fuels treatment on cultural resource sites include:

- Putting a fire line around the site - a distance to be determined in the field, but no less than 25 feet from the boundary.
- Pulling back the fuels from structures, artifacts and sites.
- Put hand piles off of trails
- Have equipment cross trails perpendicularly and where the trail is in the poorest shape.
- Changing the boundary of the fire unit to exclude the cultural resource site.
- Change a part of the fire prescription to further buffer the site - for example hand pile and burn a minimum of 25 feet away from the structures with in a site, and then the prescribed fuels treatment. This could lessen the fuel load near the cultural resource site and offer the site more protection.

Adits or shafts that are determined to be a safety hazard, shall be grated for bats and safety reasons, instead of backfilling or blasting shut.

2.4 Alternative 1

This section presents management actions specific to alternative 1. As noted above, the following issues provide a focus for environmental analysis and a basis for resulting decisions.

- a) Fire and Fuels
- b) Late-Successional Habitat
- c) Timber Management
- d) Roads/Transportation System

Alternative 1 (Map 4) would implement timber sales, fuels treatments, road management actions, wildlife pond enhancements and some other management actions under the existing guidance in the RMP. No changes to land use allocations would be made. This alternative would provide the highest level of commercial timber and other commodities, consistent with the RMP and the Northwest Forest Plan.

2.4.1 Fire and Fuels

Approximately 3,255 acres of high risk and high hazard fuels would be treated to reduce the potential for major wildfires (Map 4). The objectives would be to reduce the potential for a human-caused fire to start (risk) as well as reduce the intensity and rate of spread of a wildfire if one did get started (hazard). The highest priorities for fuels treatments are along major travel routes and ridges. Treatment of these high risk and hazard areas offer the greatest potential for altering fire behavior. This change in fire behavior greatly increases the chance that direct suppression measures would be successful in the event of a wildfire. An increased opportunity for suppression would decrease the total amount of acres burned and decrease the percentage of acres burned in a high intensity fire. Additional high risk and hazard areas have been identified where private land (the wildland-urban interface) meets federal lands as well as on southern exposures where fuels may pose an additional risk and hazard for fire spread and intensity.

Of the approximate 3,255 acres identified for non-commercial fuels treatments, roughly 1,837 acres would receive manual treatments (slashing, hand piling, hand pile burning). Mechanical treatments (slashbuster) would be applied to approximately 289 acres. In addition, approximately 1,129 acres of older stands would be underburned to reduce fuel loadings and remove ladder fuels. In the latter situation, hand fire lines would be constructed where necessary for control. Underburns would normally occur in the spring when prescribed burning is most likely to successfully meet objectives while minimizing the risk of escapement. A more detailed description of proposed fuels treatments can be found in Appendix 5.

Commercial thinning and density management treatments would also be conducted in some of the conifer stands throughout the project area. Fuels treatments would occur on approximately 2,728 acres within the commercial treatments.

Approximately 1,716 acres would receive manual treatments (slashing, hand piling, hand pile burning) and 961 acres would be underburned or broadcast burned. These treatment areas are identified on Map 4 and are considered as part of the timber harvest proposal in the GFMA or wildlife habitat enhancement proposal in the LSR.

Full wildfire suppression strategy would continue to be used throughout the area under this alternative. When a wildfire is detected, all available resources might be used to suppress the fire, including hand crews, tractors, helicopters and retardant tankers. This is consistent with the current management direction for this area.

The treatments would be tailored to individual site conditions, but would generally consist of slashing brush and saplings, hand-piling and burning the piles. In some cases, dense stands of small conifers would be thinned to space out the stems and reduce the chance of crown fires. More details of the proposed fuel treatments can be found in Appendix 5.

Commercial thinning (CT) and density management treatments (CDM) would also be conducted in some of these areas along major travel routes which could help meet some of the fuels objectives. In these cases, the CT areas displayed on Map 4 would be considered part of the timber harvest proposal in the General Forest Management Area (GFMA), and CDM also displayed on Map 4 would be considered part of the wildlife habitat enhancement proposal in the late-successional reserve (LSR).

2.4.2 Late-Successional Habitat

Under the management direction of the RMP and the Standards and Guidelines (S&G) of the Northwest Forest Plan, commercial thinning within LSRs would be undertaken when the objective is to promote the retention or enhancement of late-successional forest habitat characteristics or to reduce the risk of catastrophic wildfire. Under this alternative, 329 acres of commercial density management would occur within the current LSR in stands younger than 80 years old. In these cases, the objectives would include increasing the diameter growth of residual trees to promote development of larger diameter trees, snags and coarse woody debris, reducing competitive stress to larger diameter trees, and reduce fuel ladders.

The underburns and fuels treatments within the LSR would be designed to be consistent with LSR management direction in the NFP ROD, the RMP and the Southwest Oregon LSR Assessment. In these cases, the primary objective of the treatments in the LSR is to prevent future large scale, intense wildland fires which would remove late-successional habitat.

Three small ponds or wetlands would be improved to create better conditions for wildlife. The three locations include:

-T 33S, R 9W, sec.11, SW 1/4 of NW 1/4

This is a small pond adjacent to the road, but not visible due to screening. Road screening would be maintained. Alders would be removed in the area of the small dam, and a small amount of riparian manipulation would occur.

-T 32S, R 8W, sec. 13, NE 1/4 of SW 1/4 (Nine-mile saddle)

This small spring with a box, below the road, would be improved by excavating it to an approximately 4-foot center depth, tapered towards the edges to provide shallower water habitat and improved wildlife access. A liner would be installed to improve water retention and the road would be improved to facilitate pumper access.

T 32S, R 8W, sec.31, SE 1/4 of NE 1/4

This is a borrow pit adjacent to the road, with a spring in the southeast portion of the pit. The pit would be improved to hold water longer by digging it out to approximately a 6-foot center depth, and tapered toward the edges to provide shallower water and gentler banks. A liner would be installed to hold water for longer periods. The intake and outlets would be screened. Organic material would be hauled in to facilitate vegetative development. Vegetative screening would be placed on the west (road) side of the pit, including alder and maple. The existing 300 feet of road to the east would be barricaded with a berm to prevent motor vehicle access.

2.4.3 Timber Management

Timber harvest would involve approximately 628 acres of regeneration harvest, including overstory removal, and 871 acres of commercial thinning (Table 2 -1, Map 4). Timber harvest would result in approximately 11,497 MBF.

In units 2-1, 2-1A and 2-3 treatment would consist of thinning the pine stands to allow for release of existing Douglas-fir trees and in areas to allow for the planting of Douglas-fir seedlings where none exists. In some areas the ponderosa pines are large enough to yield a commercial product. These areas are primarily in the western part of the unit. Under this alternative approximately 20 acres of commercial density management would occur and approximately 10 MBF would result

2.3.4 Roads/Transportation System

The existing road system would be maintained to provide access for management and for public use. Existing gates and barricades would be maintained. Approximately 1.7 miles of new permanent roads would be constructed to allow timber harvest (Table 2-1). In addition, 2.0 miles of temporary roads would be constructed for timber harvest. The temporary roads would be barricaded and ripped immediately following harvest and prescribed burning.

Approximately 5.7 miles of existing jeep roads would be renovated and upgraded to provide fire suppression access.

Approximately 10.4 miles of existing roads would be fully decommissioned. Full decommissioning would involve discontinuous ripping of the road bed, removing culverts, and stabilizing the surface. A total of two gates and one barricade would be installed to close approximately 12.2 miles of existing roads to public motor vehicle use. These changes would be designed to minimize the amount of soil that moves off site.

2.4.5 Forest Health

In Alternative 1, forest health treatments would involve approximately 329 acres of commercial density management and commercial/non-commercial density management treatments. As a by-product of these treatments approximately 773 MBF of timber would be removed from forest stands. There would be approximately 181 acres of non-commercial density management treatments in which there would be no commercial by-product. This type of treatment would involve girdling or thinning young conifers and hardwoods and disposing of the slash by either underburning, hand-piling and burning, or through logging and

scattering. This non-commercial treatment would often extend down into Riparian Reserves, but no density management would occur within 25 feet of a stream.

Proposed forest health treatments are listed in Table 2-1 under "Treatments designed to meet Non-Timber Objectives (wildlife habitat, forest health, fuels) and are displayed on Map 4.

Broad areas within the West Fork Whisky Creek subwatershed would be treated to enhance and maintain the large pines in the area. Many of the larger pines in this subwatershed have died in the last two decades due to drought conditions and stress brought on by dense stands around them. The treatments would involve localized thinning around selected pine trees as well as the creation of small openings (i.e., less 1/4 acre) around other pines or groups of pines to reduce stress from competition. Since the purpose of the treatment would be to maintain a healthy pine component within watershed, treatment would occur around larger pine as well as those that would be able to grow into larger diameter classes. This treatment would occur throughout all land use allocations within the watershed except the 100-acre owl core area, and would be limited to no more than two openings per acre. Within Riparian Reserves openings would be created only within the outer half of the reserve. The size of created openings would be limited to that created by cutting competitive vegetation under the leave pine and to a distance of up to fifteen feet beyond the drip line. Openings would also be no closer than 300 feet from other created openings in the Riparian Reserve and no merchantable trees would leave the site. If merchantable trees are cut they would be left on the site to provide coarse woody debris if it were not judged to be a potential fuels/fire problem. Slash from the treatment would be lopped and scattered and would not be over three foot in depth. Slash would be pulled back at least 25 feet from the boles of leave trees. In this alternative, salvage of dead conifers in excess of those needed for wildlife and coarse woody debris recruitment would occur. A major part of the salvage operations would occur along ridges and other areas prone to lightening strikes. The treatments would occur in an area of approximately 1,091 acres, primarily in the upper 1/3 of the subwatershed and would result in an estimated 650 MBF being removed from the site as a by-product of the treatment.

Riparian shrub and hardwood vegetation within units 6-3, 6-3R1, 6-3R2, and 6-3R3 would be slashed to within 25 feet of streams and would be

broadcast-burned concurrently with the site preparation within harvest portions of the unit. The purpose of this proposed treatment is to reduce competing non-conifer vegetation and allow an understory of conifers to develop. Underplanting of these riparian units would occur along with Unit 6-3. Fire lines would not be constructed within the Riparian Reserves. The broadcast burn would be allowed to burn slowly within the Riparian Reserves.

Commercial density management treatment within LSRs would retain an overall canopy cover of 60 percent. Treatment would retain dominant, codominant, and intermediate conifers necessary for desired stand structure.

2.5 Alternative 2 (Preferred Alternative)

This section presents specific management actions to alternative 2. As noted above, the following key issues provide a focus for environmental analysis and a basis for resulting decisions.

Key Issues:

- a) Fire and Fuels
- b) Late-Successional Habitat
- c) Timber Management
- d) Roads/Transportation System

East Fork Whisky Creek Area of Critical Environmental Concern

Under Alternative 2 (Map 5), an Area of Critical Environmental Concern (ACEC) (Map 7) would be designated in the East Fork Whisky Creek subwatershed (Map 8). This ACEC would encompass approximately 1,676 acres and would include some lands currently designated both as GFMA and as LSR. The value for which this ACEC would be designated is to protect the Tanoak / Douglas-fir / Salal / Evergreen Huckleberry plant group which is not currently under the Oregon Natural Heritage Plan. Other benefits would be to maintain old growth forest habitat, undeveloped character, unique geology and soils, and high water quality. The ACEC would be designated as not available for scheduled timber harvest. Timber harvest would occur as a component of an approved research project. Hazard trees would not be knocked or cut down except in an emergency situation. Downed trees would not be removed from the site. Any trees cut for trail construction would

remain on site. Firewood gathering would be prohibited. Management projects outside the East Fork Whisky Creek subwatershed should be designed to reduce adverse affects to the subwatershed, such as feathering edges of cuts to avoid straight boundaries, using seed source from natural areas, and timing cuts and educating operators to reduce adverse effects to the subwatershed as necessary.

A draft management plan has been developed for this proposed ACEC and is presented in Appendix 10 for review and comment. A management plan would be implemented if an ACEC were to be designated. Portions of the management plan are incorporated throughout this document. Its primary components are included below. As an ACEC, road construction would not occur and most logging would be prohibited. Active timber management would be limited to stand establishment and manipulation in previously harvested areas and treatments that directly support the values of the ACEC. Fire suppression would be done with limited use of mechanized equipment such as dozers or tractor lines. Heavy equipment would stay primarily on existing ridge roads. Approximately 10 acres on the northwestern ridge line adjacent to existing ridge road would be treated for fuels to reduce the chance of fire in the ACEC. A Research Natural Area is proposed for 91 acres within the proposed ACEC.

Area of Critical Environmental Concern Monitoring Plan

Goals and Objectives: Monitoring is a procedure to gauge, check, track, or test for specified purposes. It provides information by which management actions may be evaluated and reported to others. Monitoring adds to the biological information, enhances our knowledge about the interrelationships of various physical and biological variables, and thus increases our ability to manage effectively. This plan would:

1. Identify baseline species and plant associations needs for the ACEC,
2. Establish specific monitoring objectives,
3. Identify monitoring time frames and consistent standardized procedures,
4. Interpret monitoring results relative to the baseline information as well as monitoring and implementation objectives.

Types of Monitoring: Ecological status monitoring would be conducted in the East Fork Whiskey Creek ACEC. It would monitor:

- a. RNA plant cell for changes over time

- b. ACEC for forest pests and diseases
- c. effects of wild fire should it occur
This monitoring would employ temporal/spatial analysis with aerial photos at 5 year intervals and field verification of spatial change--Area botanist, silviculturist, fire ecologist to complete.
- d. for spread of noxious weeds
This monitoring would employ annual roadside survey along perimeter roads.

2.5.1 Fire and Fuels

The management direction for fuels treatments and fire suppression are the same in alternative 2 as they would be under alternative 1 with some changes in the amount of commercial and non-commercial acres treated..

Under Alternative 2, a total of approximately 3,241 acres of high risk and high hazard fuels would be treated. Of the approximate 3,241 acres identified for fuels treatments, roughly 1,837 acres would receive manual treatments (slashing, hand piling, hand pile burning). Mechanical treatments (slashbuster) would be applied to approximately 289 acres. In addition, approximately 1,129 acres of older stands would be underburned.

Fuels treatments would occur on approximately 2,542 acres within the commercial treatments. Approximately 1,751 acres would receive manual treatments (slashing, hand piling, hand pile burning) while approximately 51 acres would receive mechanical treatments. In addition, 740 acres would be underburned or broadcast burned.

Fire suppression the proposed East Fork Whisky Creek Area of Critical Environmental Concern (ACEC) would be done with limited use of mechanized equipment such as dozers or tractor lines. Heavy equipment would stay primarily on existing ridge roads. Approximately 10 acres on the northwestern ridge line adjacent to existing ridge road would be treated for fuels to reduce the chance of fire in the ACEC.

2.5.2 Late-successional Habitat

Under alternative 2, an equal number of acres of commercial density management would be done within the LSR as under alternative 1. Approximately 329 acres would be treated.

The pond improvements identified in alternative 1 would be also be implemented under this alternative. In addition, one other pond would also be improved:

-T 33S, R 9W, sec. 4, SE 1/4 of NW 1/4 (Kelsey Pond)

This pond is currently dry. A liner would be installed to help retain water. At the existing culvert outfall, an approximately 4-foot deep catch-basin would be constructed, with an outfall pipe directed to the pond. The existing pipe below the road would also be cleaned out.

2.5.3 Timber Management

Under alternative 2 permanent roads would not be constructed. Some adjustments to timber harvest activity would occur, primarily changing some cable yarding under alternative 1 to helicopter yarding, and deferring some harvest units. Additional emphasis would be placed on providing a higher level of connectivity for wildlife species associated with late-successional forest habitat compared with alternative 1 by modifying timber harvest activity in the northeast portion of the planning area. Timber harvest would involve approximately 355 acres of regeneration harvest, including overstory removal, and 969 acres of commercial thinning (Table 2 - 1, Map 5). Timber harvest would result in approximately 8,815 MBF.

The volume projected for alternative 2 is lower than for alternative 1, primarily for two reasons. First, permanent roads would not be constructed, so harvest plans for some units would be altered. Changing from cable yarding to helicopter yarding is one option, but this has other implications, including making site preparation (especially broadcast burning) more difficult or expensive, or increasing the cost of future management, such as planting, surveying, brushing and pre-commercial thinning. For these reasons, some proposed units were deferred in this alternative. Second, the proposed timber sales in the northeast portion of the EIS area would be modified to provide a higher level of connectivity for species associated with late-successional forest habitat than would be provided by alternative 1. In some cases potential units proposed in alternative 1 would be deferred under this alternative. In others, units which were proposed to be regeneration harvested in alternative 1 would receive a lighter harvest, retaining more of the forest canopy and structure. This would not be a permanent designation, the area would still remain as GFMA and would be

subject to intensive timber management in the future. But it would help maintain connectivity to the east and north in the short term more than would alternative 1. Alternative 2 was designed as an intermediate approach to providing connectivity, at least in the short term.

2.5.4 Roads/Transportation System

Most of the existing road system would be maintained to provide access for management and for public use. Existing gates and barricades would be maintained. There would be no new permanent road construction. Approximately 1.5 miles of temporary roads would be constructed for timber harvest; these would be barricaded and ripped immediately following harvest and prescribed burning (Table 2-1).

Existing jeep roads would not be renovated and upgraded to provide fire suppression access, but would be maintained in their current condition.

Approximately 10.4 miles of existing roads would be fully decommissioned. A total of two gates and one barricade would be installed to close approximately 11.1 miles of existing roads to public motor vehicle use.

Proposed Area of Critical Environmental Concern

Road maintenance on any of the roads within or bordering the proposed ACEC should not utilize exotic species for road stabilization projects. Culverts and water ditches on these roads should be checked as frequently as possible to avoid excess runoff during storms.

2.5.5 Forest Health

In alternative 2, forest health treatments would involve approximately 329 acres of commercial density management and commercial/non-commercial density management treatments. As a by-product of these treatments, approximately 773 MBF of timber would be removed. There would be approximately 181 acres of non-commercial density management treatments in which there would be no commercial by-product. This type of treatment would involve girdling or thinning young conifers and hardwoods and disposing of the slash by either underburning, hand-piling and burning, or through

logging and scattering. This non-commercial treatment would often extend down into Riparian Reserves, but no density management would occur within 25 feet of a stream.

Proposed forest health treatments listed in Table 2-1 under "Treatments designed to meet Non-Timber Objectives (wildlife habitat, forest health, fuels) and are displayed on Map 5.

The pine enhancement and maintenance treatments in the West Fork Whisky Creek subwatershed described under alternative 1 would also occur under this alternative. Treatment in this alternative would be similar to that in Alternative 1 only there would be no salvage of excess conifer snags. Approximately 600 MBF of commercial timber would result from this treatment.

Commercial density management treatments in the California Gulch area would retain an overall canopy cover of at least 60 percent; similar treatments within LSRs, and within the connectivity area in the North Fork Kelsey Creek subwatershed would retain an overall canopy cover of at least 60 percent. Treatments would retain dominant, codominant, and intermediate conifers necessary for desired stand structure. Trees larger than 11 inches dbh in LSR units would be retained.

2.6 Alternative 3 (No Action Alternative)

This section presents specific management actions to alternative 3. As noted above, the following issues provide a focus for environmental analysis and a basis for resulting decisions.

Key Issues:

- a) Fire and Fuels
- b) Late-Successional Habitat
- c) Timber Management
- d) Roads/Transportation System

The No Action Alternative would allow for routine management actions to occur within the EIS area in accordance with established RMP guidelines. Actions which would require an Environmental Assessment (EA) or Environmental Impact Statement (EIS) would not occur under alternative 3. There would be no scheduled timber sales, fuels treatments, or wildlife enhancement treatments for the 5 year planning period.

2.6.1 Fire and Fuels

Fire suppression activities would continue under current direction, which calls for full suppression throughout the EIS area. Minor brushing around structures and other facilities would continue to occur. Hand-piling treatments would also continue to occur if they are covered by categorical exclusions. Major fuels management treatment including commercial thinning, slashing, underburns and mechanical treatments would not occur.

2.6.2 Late-successional Habitat

The commercial thinning and the enhancement proposals for wetlands, ponds and springs would not occur under this alternative.

2.6.3 Timber Management

No scheduled timber sales would be implemented under this alternative. Future timber sales would be expected to occur at some point since portions of the area are designated as General Forest Management Area, but they would be analyzed under separate NEPA documents.

Small salvage sales of individual cull trees, danger trees and down logs would continue to occur using current management direction if they would be covered by a categorical exclusion. Larger scale salvage sales would require additional NEPA analysis.

2.6.4 Roads/Transportation System

The existing system of roads and trails would be maintained using current management practices. This would include routine road maintenance, roadside brushing, cleaning culvert catch basins, normal road repair following slides and flood damage, removing fallen trees, and other actions not requiring an EA or EIS.

2.6.5 Forest Health

The treatments in stands proposed in the other alternatives would not occur under this alternative. Similarly, the pine conversion proposed for the

Quail Creek burn would not occur without further NEPA analysis. Stand enhancement activities such as brushing and pre-commercial thinning in existing harvested units may be covered by categorical exclusions and would continue to occur under this alternative.

2.7 Alternative 4

This section presents management actions specific to alternative 4. As described above, the following issues provide a focus for environmental analysis and a basis for resulting decisions.

Key Issues:

- a) Fire and Fuels
- b) Late-Successional Habitat
- c) Timber Management
- d) Roads/Transportation System

Alternative 4 (Map 6) was designed to emphasize protection of non-commercial resources while still providing some level of commercial commodities. Timber harvest would be implemented only where needed to promote future growth of existing forest stands, forest health, wildlife habitat or fuels management. No regeneration harvest is proposed for this entry. No new roads, either permanent or temporary, would be constructed. An ACEC would be designated in the East Fork Whisky Creek subwatershed (Map 8). This ACEC would encompass approximately 2,843 acres, with management as described for alternative 2.

2.7.1 Fire and Fuels

The management direction for fuels treatments and fire suppression are the same in Alternative 4 as they would be under Alternative 1. However, there would be some changes in the amount of commercial and non-commercial acres treated.

Under Alternative 4, a total of approximately 3,215 acres of high risk and high hazard fuels would be treated. Of the approximate 3,215 acres identified for fuels treatments, roughly 1,784 acres would receive manual treatments (slashing, hand piling, hand pile burning). Mechanical treatments (slashbuster) would be applied to approximately 302 acres. In addition, approximately 1,129 acres of older stands would be underburned.

Fuels treatments would occur on approximately 1,971 acres within the commercial treatments. Approximately 1,659 acres would receive manual

treatments (slashing, hand piling, hand pile burning) while approximately 51 acres would receive mechanical treatments. In addition, 261 acres would be underburned or broadcast burned.

Fire suppression would be done with limited use of mechanized equipment such as dozers or tractor lines. Heavy equipment would stay primarily on existing ridge roads. Approximately 10 acres on the northwestern ridge line adjacent to existing ridge road would be treated for fuels to reduce the chance of fire in the ACEC.

2.7.2 Late-Successional Habitat

Under the management direction of the RMP and the standards and guidelines of the Northwest Forest Plan, commercial thinning within LSRs is to be undertaken when the objective is to promote the retention or enhancement of late-successional forest habitat characteristics. Under this alternative, 328 acres of commercial density management would occur within the modified LSR, resulting in approximately 768 MBF.

The pond and meadow improvements identified in alternative 2 would be also be implemented under this alternative.

2.7.3 Timber Management

Under this alternative no regeneration harvest or overstory removal harvest would be implemented. Timber harvest on the modified GFMA would consist of approximately 955 acres of commercial thinnings designed to increase growth and yield (Table 2 - 1, Map 6). Timber harvest would result in approximately 3,418 MBF of merchantable timber volume.

2.7.4 Roads/Transportation System

Approximately 13.8 miles of existing roads and unimproved roads would be decommissioned. Two gates would be installed to close approximately 18.0 miles of existing roads to public motor vehicle use. Existing jeep roads would not be maintained, renovated or upgraded to provide fire suppression access. The roads would be allowed to become overgrown with brush and trees.

2.7.5 Forest Health

In alternative 4, forest health treatments would involve approximately 328 acres of commercial density management and commercial/non-commercial density management treatments. As a by-product of these treatments approximately 768 MBF of timber would be removed. There would be approximately 181 acres of non-commercial density management treatments in which there would be no commercial by-product. This type of treatment would involve girdling or thinning young conifers and hardwoods and disposing of the slash by either underburning, hand-piling and burning, or through lopping and scattering. This non-commercial treatment would often extend down into Riparian Reserves, but no density management would occur within 25 feet of a stream.

Proposed forest health treatments listed in Table 2-1 under "Treatments designed to meet Non-Timber Objectives (wildlife habitat, forest health, fuels) and are displayed on Map 6.

The pine enhancement and maintenance treatments in the West Fork Whisky Creek subwatershed, described under alternative 1, would also occur under this alternative. Treatment would be similar to that in alternative 1 except there would be no salvage of excess conifer snags. Approximately 625 MBF would result from this treatment.

Commercial density management treatment in the California Gulch and LSR units would retain an overall canopy cover of 60 percent. Treatment would retain dominant, codominant, and intermediate conifers necessary for desired stand structure. Trees larger than 11 dbh would be retained.

Table 2-1. Summary of management in all alternatives. Treatment acreages and mileages are approximations for analytical purposes, based on preliminary field review and existing spatial data. Actual treatment acres may vary slightly.

Management	Alternatives			
	1	2 Preferred	3 No-Action	4
Land Use Allocations Which Amend the Medford District Resource Management Plan				
Change in LSR from RMP allocations	No Change	No Change	No Change	No Change
Change in GFMA from RMP allocations	No Change	No Change	No Change	No Change
Change in acres. available for timber mgt	No change	- 470 acres	No change	- 1,093 acres
Connectivity Blocks two blocks, 1,258 acres	No change	No change	No change	No change
Designation of East Fork Whisky Creek ACEC	No designation	+ 1,677 acres	No designation	+ 2,844 acres
Off-Highway-Vehicle Restrictions Which Amend the Medford District Resource Management Plan				
Miles closed due to road decommissioning	10.4 miles	10.4 miles	0	13.8 miles
Roads closed with gates	5.08 miles	5.08 miles	0	9.16 miles
Roads closed with barriers	2.29 miles	2.29 miles	0	0
Leasable Mineral and Energy Resources Amendments to the Medford District Resource Management Plan (Area is describe in Medford RMP as low potential for oil & gas and geothermal resources)				
No leasing available	No change	No change	No change	No change
No surface occupancy stipulation	No change	+ 470 acres, not including pre-existing constraints	No change	+ 1,093 acres, not including pre-existing constraints

Table 2-1. Summary of management in all alternatives. Treatment acreages and mileages are approximations for analytical purposes, based on preliminary field review and existing spatial data. Actual treatment acres may vary slightly.

Management	Alternatives			
	1	2 Preferred	3 No-Action	4
Special leasing, stipulations Aquatic Conservation Strategy	No change	No change	No change	No change
Special leasing stipulations, sensitive habitats	No change	No change	No change	No change
Standard leasing stipulations	No change	- 470 acres	No change	- 1,093 acres
Utility Transmission Corridor or Sites and Special use Permit Opportunity Amendment to the Medford District Resource Management Plan (Area does not include occupied corridors, or have known interest in special use permits or sites)				
Use/permit Restricted acres	No change	+ 1,667 acres	No change	+ 2,844 acres
Activity / Implementation Actions Affecting the Planning Area Transportation System				
Permanent Road Construction	1.7 miles	0 miles	0 miles	0 miles
Temporary Road Construction	2.0 miles	1.9 miles	0 miles	0 miles
Primitive roads to be improved	9.2 miles	8.2 miles	0 miles	8.2 miles
Road Decommission	10.4 miles	10.4 miles	0 miles	13.8 miles
Road closed with gates	5.08 miles	5.08 miles	8.03 miles	9.16 miles
Road closed with barricades	2.29 miles	2.29 miles	0 miles	0 miles
Forest Stand Treatments Proposed to Implement the Medford District Resource Management Plan				
Treatments Designed to Meet the Medford District Resource Management Plan Timber Management Objectives				
Regeneration harvest (RH, OR, OR/CT RH/CT, RH/OR)	628 acres 8,006 MBF	355 acres 4,473 MBF	0	0

Table 2-1. Summary of management in all alternatives. Treatment acreages and mileages are approximations for analytical purposes, based on preliminary field review and existing spatial data. Actual treatment acres may vary slightly.

Management	Alternatives			
	1	2 Preferred	3 No-Action	4
Commercial Thin (CT, CT/PCT)	871 acres 3,491 MBF	969 acres 3,642 MBF	0	955 acres 3,418 MBF
Total Harvest Treatments	1,499 acres 11,497 MBF	1,324 acres 8,115 MBF	0	955 acres 3,418 MBF
Tractor Yarding	None	None	None	None
Cable Yarding	1,187 acres	874 acres	None	700 acres
Cable/Helicopter	148 acres	171 acres	None	122 acres
Cable/Tractor	164 acres	155 acres	None	51 acres
Helicopter Yarding	None	124 acres	None	82 acres
Precommercial Thin	50 acres	50 acres	None	61 acres
Fuels Treatments Associated with RMP Timber Objective Treatments				
Slash/Pile (SP)	1,716 acres	1,751 acres	None	1,659 acres
Broadcast Burn (BB,UB,UB/SP)	961 acres	740 acres	None	261 acres
Mechanical Fuels Treatment (MFT)	51 acres	51 acres	None	51 acres
Treatments Designed to Meet RMP Non-Timber Objectives (e.g., forest health, wildlife habitat, fuels, etc.)				
Partial Cut (CDM, CDM/NDM)	329 acres 773 MBF	329 acres 773 MBF	None	328 acres 768 MBF
Tractor Yarding	1 acre	1 acre	None	None
Cable Yarding	103 acres	103 acres	None	103 acres
Helicopter Yarding	137 acres	137 acres	None	137 acres
Cable/Helicopter	51 acres	51 acres	None	51 acres
Cable/Tractor	47 acres	37 acres	None	37 acres

Table 2-1. Summary of management in all alternatives. Treatment acreages and mileages are approximations for analytical purposes, based on preliminary field review and existing spatial data. Actual treatment acres may vary slightly.

Management	Alternatives			
	1	2 Preferred	3 No-Action	4
Non-Commercial Density Management (LSR)	181 acres	181 acres	None	181 acres
Pine enhancement/maintenance (West Fork Whisky Cr.) (Matrix)	1,091 total acres, 561 acres CT 650 MBF	1,091 total acres, 561 acres CT 600 MBF	None	1,105 total acres 575 acres of CT 625 MBF
Pine Conversion; Pine to Douglas-fir (Quail Cr. fire) (LSR)	221 acres 10 MBF	221 acres 0 MBF	None	221 acres 0 MBF
Fuels Treatments Associated with RMP Non-Timber Objective Treatments				
Slash/Pile (SP)	1,837 acres	1,823 acres	None	1,784 acres
Underburn (UB, UB/SP)	1,129 acres	1,129 acres	None	1,129 acres
Mechanical Fuels Treatments	289 acres	289 acres	None	302 acres
RMP Fire Suppression Priorities and Equipment Limitations				
Wildfire Suppression	Full Fire Suppression	Full Fire Suppression but limits on heavy equipment in ACEC	Full Fire Suppression	Full Fire Suppression but limits on heavy equipment in ACEC
Wildlife Habitat Enhancement to Meet RMP Objectives				
Spring/Pond Enhancement	3 sites	4 sites	None	4 sites
BB	Broadcast Burn		PCT	Pre-commercial Thin
CDM	Commercial Density Management		RH	Regeneration Harvest
CT	Commercial Thin		SL	Slash
MFT	Mechanical Fuels Treatment		UB	Underburn
NDM	Non-commercial Density Management		L&S	Lop and Scatter
OR	Overstory Removal		MBF	Thousand Board Feet
P	Hand Pile, burn piles		SP	Slash/Pile

Chapter 3 - Affected Environment

3.0 Introduction

This chapter describes the relevant resource components that might be affected by the proposed alternatives within the Kelsey Whisky Planning Area. The baseline conditions presented in this chapter are the basis for the Environmental Consequences (Chapter Four) of the No Action Alternative. The descriptions will focus on the key issues as described in Chapter One. Discussions from previous analysis are summarized and incorporated by reference from the Northwest Forest Plan (April 1994), Medford District Proposed Resource Management Plan/Environmental Impact Statement (Oct 1999) and the more site specific Wild Rogue North Watershed Analysis (Ver 2.0 December 1999) and the Wild Rogue South Watershed Analysis (Ver. 1.0 March 2000).

The following items were considered but are not present in the planning area: flood plains, regional aquifers and farmlands. There are currently no Areas of Critical Environmental Concern (ACEC) or Research Natural Areas (RNA) in the planning area.

All tables pertaining to Chapter 3 may be found at the end of the text of Chapter 3.

3.1 Location and Description

The Kelsey Whisky Planning Area (Map 1) encompasses approximately 104,000 acres within Josephine and Curry Counties in southwestern Oregon. It is situated approximately 23 miles northwest of Grants Pass and bordered by the Galice and Bear Camp roads to the south, the Wild Rogue Wilderness Area to the west, and the Marial National Backcountry Byway on the north and east. It has the same boundaries as the fifth-field watershed known as the Rogue River/Kelsey Creek Watershed (REO #17100310004). The planning area is dissected by the Rogue River which also serves as the administrative boundary between two BLM Resource Areas: Glendale RA to the north and Grants Pass RA to the south.

The area is characterized by a Mediterranean climate with cool, wet winters and hot, dry summers. Annual precipitation increases from east to west. It ranges from about 40 inches at the mouth of Grave Creek on the east side of the watershed, to nearly

120 inches on Mount Bolivar to the west. Approximately 80 percent of the precipitation occurs from October through May. Elevation ranges from 400 feet to almost 4,900 feet. Table 3-1 presents a summary of environmental features of the northern portion of the watershed, the area in which management actions are being proposed.

Approximately 96 percent of the planning area is managed by the BLM. Isolated blocks of lands held in private ownership (3 percent) are located within the planning area, primarily in the vicinity of Marial and Black Bar Lodge. Galice, a seasonal recreational community, is about ten miles upstream of the Planning area. In addition to private landowners, the U.S. Forest Service and State of Oregon manage approximately 1 percent of the planning area. There are no major communities located within the planning area.

The Medford District Resource Management Plan (RMP) and the Northwest Forest Plan (NFP), designated seven land use allocations which apply to the planning area. General Forest Management Area (GFMA) lands have timber management as a major objective. Connectivity Blocks are also to be managed for timber production with modified harvest to provide for old growth structure. Late-Successional Reserves (LSRs) are to be managed for old-growth conifer habitat. Riparian Reserves, located along streams, are also to be managed for old-growth and late-successional habitat and to provide for optimum stream habitat. Spotted owl core areas are 100-acre blocks of older forest to be managed for late-successional habitat. Administratively withdrawn lands include lands withdrawn from intensive timber management using the Timber Productivity and Capability Classification (TPCC) system and the Rogue River Corridor.

The land allocations for the Kelsey Whisky Planning Area can be seen on Map 7 and include:

- 62 percent Late Successional Reserve and Northern Spotted Owl core areas
- 10 percent Riparian Reserves
- 15 percent Wild and Scenic River Corridor
- 3 percent TPCC withdrawn (TPCC withdrawn to the south is within LSR layer)
- 10 percent GFMA lands

Approximately 50 percent of the land located on the north side of the Rogue River and all of the land on the south side is included within the larger Fishhook/Galice Late-Successional Reserve (# OR-258). The Southwest Oregon LSR assessment (1995) indicates that approximately 60 percent of

this LSR is currently late-successional habitat, approaching the desired objective of 70 percent.

The East Fork Whisky Creek subwatershed encompasses almost all aspects and ranges in elevation from 1450 feet near the confluence with the West fork of Whisky Creek to 4017 ft on Mount Reuben.

3.2 Soils

Soils in the planning area are derived from metasedimentary and metavolcanic rock types. These soils tend to be relatively deep, with more available nutrients than other soil types. They are also moderately erosive and prone to rotational and translational slides. Many of the smaller basins exhibit multiple erosion channels, particularly in areas prone to rotational slumping. Metasedimentary soils are associated with the Dothan Formation. On the north side of the Rogue River they are found in the area west of Whisky Creek and east of Mule Creek. South of the Rogue River this formation is found west of Howard Creek. The East Fork Whisky Creek basin is comprised of two geologic formations. The Dothan, late Jurassic in age, consists of both metamorphic sediments and volcanics. This formation encompasses about 2/3rds of the basin. The Rogue Formation, also late Jurassic in age, is composed of ultramafic materials including serpentinite. Most of the mining activity occurred in this formation which is found in the southeastern portion of the basin. This unique mix of geology allows a great diversity of plant communities to be present..

Soils derived from metavolcanic rocks, primarily found in the Rogue formation, are generally shallow and nutrient deficient. These soils are found east of Whisky Creek and west of Mule Creek. In general, they are less prone to landslides than soils derived from the Dothan formation. However, in areas of contact between serpentinite and other geologic types in the Rogue formation, there is a high risk of slope failure. Serpentinite seams are present in the east fork of Whisky Creek Drainage and west of Mule Creek as well as lands east of Howard Creek.

Variation in the hardness, grain, and possibly chemical composition of the sediments helped to produce a variety of soils. Soil depths range from over 40 inches to less than a foot. Some soils are buried by colluvial rock and are likely skeletal. Since rainfall, clouds, or fog does not totally compensate for low soil moisture holding capacity,

the vegetation patterns tend to reflect soil depth and water availability. Deeper soils may be found in "pockets" close to the ridge tops in some drainages. Such lenses or pockets are not atypical.

Josephine County Soil Survey

Speaker Josephine	72F	
Beakman Vermissa	8G	<60% slope
Vermissa Beekman	81G	60 to 100% south slope
Vermissa rock outcrop	82G	
Vermissa Beekman	80G	60 to 100% north slope

3.3 Hydrology

3.3.1 Wetlands, Flood plains and Riparian Zones

There are no flood plains or regional aquifers in the planning area. The BLM has no ground water injection facilities in the planning area. There is domestic use of springs and perennial streams near Marial for drinking water and garden irrigation.

Wet meadows are uncommon in the planning area, but when found, are located in the Dothan formation east of Marial and west of Kelsey Creek on the north side of the Rogue River. On the south side, they occur west of Big Windy Creek. Generally, these meadows are smaller than one acre. They are the result of rotational slides that form small depressions.

There has been little previous timber management activity in riparian areas in the planning area. All streams are considered to be properly functioning, except in the Mule Creek and upper Kelsey Creek subwatersheds due to higher road densities and past timber harvest. Approximately 81 percent of the Riparian Reserve acreage is in late-successional habitat condition; only 1 percent is not forested. The remainder is in early- and mid-seral stages due to wildfires and timber harvest.

Proposed Area of Critical Environmental Concern

The East Fork Whisky Creek subwatershed is a complete watershed system at the 7th field, including tertiary, secondary, and primary drainages containing relatively undisturbed riparian areas. The riparian zone contains abundant downed wood and old growth conifers including Douglas fir, Ponderosa pine, and Pacific yew. Riparian

hardwoods such as big leaf maple, red alder, and vine maple are major components of the understory. The riparian habitat and its microclimate are intact throughout the 7th field watershed due to the absence of road construction and timber harvest. Stream conditions are typical of undisturbed forests: abundant large woody debris, excellent habitat diversity, minimal sedimentation, and cool water temperatures during summers. Few riparian ecosystems with these characteristics still exist in southwest Oregon. The lower quarter mile of the stream is currently an active placer mine with largely altered riparian vegetation.

3.3.2 Water Quality

Beneficial uses of water for the Rogue Basin have been identified in the Wild Rogue North Watershed Analysis as private domestic water supply, public domestic water supply, industrial water supply, irrigation, anadromous fish passage, anadromous fish rearing, anadromous fish spawning, resident fish and aquatic life, wildlife and hunting, and fishing (pg 20).

Mule and Whisky Creeks, both north of the Rogue River, are listed by the Oregon Department of Environmental Quality for temperatures exceeding 64 degrees F for seven consecutive days (Clean Water Act, section 303d listing). There are also some water-quality limited streams, due to stream temperatures higher than the standard, but since the streams are undisturbed, the high water temperatures are a natural condition and would not be affected by any of the proposed alternatives. They are both remote and unharvested, with little or no riparian manipulation in the past. The planning area where projects are being proposed is largely in excellent condition with few roads or past development. These high temperatures are thought to be a result of natural conditions resulting from low summer precipitation, low water holding capacity of the soils, low summer flows and high ambient air temperatures. The Rogue River is also listed for high temperatures.

Most elements comprising a water quality management plan (WQMP) are contained in the Wild Rogue North Watershed Analysis. A WQMP is tentatively scheduled for completion in FY2003.

3.4 Vegetation

3.4.1 Plant Associations and Communities

Plant communities are representative of the diversity encountered in the Klamath Mountains Province. Frequent fire disturbance has played an important role in the development of existing plant communities. Potential natural vegetation was mapped on three levels, using the system presented by Atzet and McCrimmon (1990) and further described in the North Rogue Watershed Analysis (BLM 1995). The series is the broadest category, plant associations are fine scale divisions and plant association groups are intermediate between series and associations. Table 3-2 presents Plant Series information in relationship to acres and percentage of the watershed which is also the Kelsey Whisky Planning Area..

The Mule Creek drainage has small areas of white fir series and western hemlock series predominately in the cooler north-facing micro-sites. The Oregon white oak series is found in scattered locations on dry, south-facing sites. Shrubfields with canyon live oak are found on rockier sites.

The Douglas-fir series is found at low elevations, near the Rogue River, on sites too dry for tanoak, and also at higher elevations, above the range of the tanoak. Knobcone pine occurs on the driest sites in the Howard Creek drainage and along Bonnie Ridge, indications of historic stand replacement fire events.

Proposed Area of Critical Environmental Concern

East Fork Whisky Creek lies amid the transition area between the Klamath Province and the Oregon Coast Range Province, with the proposed Area of Critical Environmental Concern boundaries within T33S, R08W, sections 10, 11, 12, 13, 14, 15, 22 and 23. Although cut by coastal rivers, the coast range provides a continuous, high elevation, migratory pathway into the Klamath Province. Elevations average about 2000 feet in the coast range but increase significantly in the Klamaths. The Klamaths, central to the southern part of the Pacific Northwest, also link with the California Coast Ranges, the Cascades and the Sierra Nevada Ranges.

The vegetation composition on 91 acres would fill the Oregon Natural Heritage cell for Tan oak-Douglas fir/salal-evergreen huckleberry (LIDE3-PSME/GASH-VAOV2.) The area is large enough to

function as an independent ecological system and to support species that range over a large area and require the habitats and vegetation diversity provided by ecosystems represented in the basin. It is the largest known block of relatively unentered forest representing the Douglas Fir/ tanoak series in the Medford District. It contains a mosaic of seral stages representative of the Douglas Fir / tanoak vegetation community, and can therefore provide important data on the natural processes occurring in the range of successional stages from early seral through old growth conifers. The area already contains species known to be associated with and used as indicator species of healthy old growth habitat. Spotted Owls, Goshawk, Pileated Woodpeckers etc. are common to the area. The East Fork Whiskey Creek area lies amid the migratory axes on the crest. The climate is influenced by marine air and colder, drier, inland highs. It is also located in the north-south transition between the temperate and Mediterranean ecosystems. It typifies the southern coast range transitional ecosystems.

East Fork Whiskey Creek subwatershed is surrounded on the west by West Fork Whiskey Creek, Bonnie Creek to the North and Reuben Creek to the east.. The area contains features not only representative of both provinces, but also other unique elements which are not easily classified into either province according to the Oregon Natural Heritage Plan (ONHP). A plant group identified as Cell #30, the Tanoak-Douglas fir moist with evergreen huckleberry, salal and dwarf Oregon grape, can be found here.

Both xeric and mesic plant communities are in the drainage as well as a broad range of age classes. Elevation differences and varied geology help to provide niches for the Sugar pine, ponderosa pine, tanoak, and Douglas-fir communities. Patterns are also associated with aspect, slope, and soil differences. Age classes and community differences produced by fire are also evident. Low intensity underburns and stand replacement events have occurred leaving patches 5 to 25 acres in size throughout the variable matrix. There are several stands of very old trees on the upper slopes and along the creek bottom, with an array of age classes along the mid-slopes representing the varied fire history. Below is a synopsis of the different types of vegetation associations that occur within the East Fork Whiskey Creek subwatershed

Tanoak - Douglas-fir / rhododendron-salal areas

These areas are found to occur on moderate slopes, various aspects, and on moderately drier

areas within the ACEC. It is another association for which East Fork Whiskey Creek was nominated as an RNA. Douglas fir (*Pseudotsuga menziesii*) is dominant in the overstory and in the regeneration layer. Hardwoods such as rhododendron (*Rhododendron macrophyllum*) and tanoak (*Lithocarpus densiflorus*) are codominants. The shrub layer is shared by salal (*Gautheria shallon*), chinkapin (*Castanopsis chrysophylla*). The absence of hemlock in the regeneration layer, and the fact that this association is found on somewhat drier sites with less northerly aspects differentiates it from the Douglas fir - western hemlock / Rhododendron / salal forest association.

Riparian vegetation zones

The riparian zones within East Fork Whiskey Creek are characterized by an overstory dominated by Douglas Fir (*Pseudotsuga menziesii*). The subdominant layer is shared by vine maple (*Acer circinatum*), big-leaf maple (*Acer macrophyllum*), Alder (*Alnus rubra*), and the regenerating conifers. The Shrub layer contains mainly stink currant (*Ribes bracteosum*) and red huckleberry (*Vaccinium parviflorum*), and herbs include *Boykinia major*, western inside-out flower (*Vancouveria hexandra*), fairy bells (*Disporum hookerii*), sword fern (*Polystichum munitum*), woods sori (*Oxalis oregana*), vanilla leaf (*Achlys triphyllum*), and pathfinder (*Adencaulon bicolor*).

Evergreen Hardwood Area

There are some areas within the drainage that are dominated by evergreen hardwoods. These evergreen hardwood areas occur mainly on moderate slopes (30 to 60 %), and on the Speaker Josephine soils which are deeper and well drained. Dominant overstory vegetation species include madrone (*Arbutus menziesii*), tanoak (*Lithocarpus densiflorus*). Canyon live oak (*Quercus chrysolepis*) is found interspersed within these areas. Douglas fir (*Pseudotsuga menziesii*) occurs within these areas in the overstory and within the regeneration layer. The understory in these areas contains very little vegetation, but Oregon grape (*Berberis nervosa*), and goundcones (*Boschniakia sp.*) occur occasionally.

Canyon Live Oak / Douglas fir Vegetative areas

There are a few areas within the ACEC where soils occur on extreme south facing slopes (over 60%). These areas are characterized by rocky steep ground with very thin, nutrient poor soils. Canyon live oak (*Quercus chrysolepis*) and Douglas fir (*Pseudotsuga menziesii*) are the only two overstory species that can tolerate such conditions. Fire has historically swept through these slopes leaving the

understory relatively clean, and the Douglas firs within these areas could be as old as 400 years.

3.4.2 Seral Stage Patterns and Successional Processes

There is little grass/forb seral stage development. Areas of dense shrubs or hardwoods punctuated with conifers are likely the result of repeated, intense fires, along the Rogue River and within the wilderness area.

The upper reaches of the watershed are characterized by large areas of fairly homogeneous stands of single canopy-layer Douglas-fir forests, which are approximately 200 years old. It appears that while light underburns occurred during the past several decades, the relatively fire-resistant Douglas-fir persisted. These underburns did not open forest canopies as timber harvesting has done in some areas. These same basic successional patterns appear to be operating on lower sites, but the high rainfall and deep soils have extended the fire interval rate.

The age class distribution within the watershed is presented in Table 3-3. The majority of stands are a combination of mature and old growth trees. In this watershed, mature stands include those between 80 and 200 years old; old growth stands are older than 200 years.

Many stands in the watershed have been modified through past timber harvest or fire events. While overstory still consists of older trees, the canopy has been opened to the point where the understory has developed dense stands of brush or hardwoods. For many species associated with late-successional habitat these stands do not provide suitable habitat, so the acreage has been separated in Table 3-3.

The relatively large expanse of contiguous conifer forest in Arrasta Fork Mule Creek (with only scattered openings) represents near climax development for this area. While fires burned through this drainage in the past, most were probably of relatively low intensity during the 1800s and 1900s. The mosaic pattern of stands in the Kelsey Creek and West Fork Mule Creek sub-watersheds are the result of repeated wildfires and the physical features of rocky, shallow soils and south aspects.

Late seral conifer species include Douglas-fir (*Pseudotsuga menziesii*), white fir (*Abies concolor*), sugar pine (*Pinus lambertiana*), ponderosa pine (*Pinus ponderosa*), grand fir (*Abies grandis*), incense-cedar (*Calocedrus decurrens*), western red cedar (*Thuja plicata*), western hemlock (*Tsuga mertensiana*), Port-Orford-cedar (*Chamaecyparis lawsoniana*), and pacific yew (*Taxus brevifolia*). Jeffrey pine (*Pinus jeffreyi*) is the predominant late seral species on serpentine soils. Some of the more common understory vegetation in late seral communities includes tanoak (*Lithocarpus densiflora*), rhododendron (*Rhododendron macrophyllum*) and salal (*Gaultheria shallon*).

3.4.3 Special Status Plant Species

3.4.3.1 Vascular Plants

In the summer of 2001 surveys were conducted for vascular plants in fuels treatment units. Survey methods conformed to (BLM IM OR-99-26). Several species were found: *Bensoniella oregana* was found in wet areas and is associated with late-successional forests. *Lewisia cotyledon* var. *howellii* and *Sedum moranii* are found on rock outcrops. They would be sensitive to fire, although their habitat is unlikely to carry fire in many cases due to low fuel levels. *Delphinium nudicaule* is found in relatively open rocky areas; sites could be underburned outside of the growing season. Early to mid-successional areas are habitat to *Lotus stipularis*; this species could benefit from underburning, although plants should be protected from direct disturbance by machinery. *Allium solanderi* var. *solanderi* is a Bureau Tracking species, and as such does not require protection; all of the others do require protection.

Protection is currently required for the Bureau Sensitive and Assessment species, and the Survey and Manage species. Tracking species are tracked only for review purposes (Appendix 8).

Fritillaria gentneri is listed endangered under the Endangered Species Act. Although it has been found in the Glendale Resource Area, the planning area is outside of its known range. It would be searched for during plant surveys, however, and protected if found.

Relative to the proposed Area of Critical Environmental Concern (ACEC), several Bureau Tracking (BTO), Bureau Sensitive (BSO), and

Bureau Assessment (BAO) species have been found. *Sedum moranii* (BSO status), endemic to southwest Oregon, growing on serpentine and greenstone rock outcrops, has been found in sections 12 and 23. A moss generally found on bedrock in perennial streams, *Fissidens grandifrons* (BTO) was found in section 13. Just outside of the proposed ACEC there are sites of *Tortula subulata* (BTO), *Fritillaria glauca* (BAO), and *Allium bolanderi* var. *mirabile* (BTO). These can also be expected to be found within the boundaries of the proposed ACEC.

Several other species of vascular plants have been found in the planning area or may be suspected in the project area (Appendix 6). *Cypripedium fasciculatum* and *Iliamna latibracteata* have not been found in the watershed, but occur nearby and are suspected in the project area. *Cypripedium fasciculatum* is an interior forest species which requires inclusion of a large enough area to maintain current habitat and microclimate conditions. The planning area has not been surveyed extensively, except for the East Fork Mule Creek area.

Surveys have been and will continue to be conducted with the intuitive-controlled method (BLM 1999).

3.4.3.2 Lichens, Bryophytes and Fungi

A few species have been found during preliminary surveys. These species include *Hedwigia stellata*, *Dendroscopaulon intricatulum*, *Bryoria tortuosa*, *Tortula subulata*, *Fissidens grandifrons* and *Fuaria muhlenbergii*. Additional information about these species and a listing of the Survey and Manage or Special Status lichens and bryophytes suspected in the project area and that require pre-disturbance surveys is presented in Appendix 7.

Species requiring surveys before ground-disturbing activities include Survey and Manage Category A and C Species. No fungi that occur in the area are included in Categories A or C. *Bridgeoporus nobilissimus*, (Category A) is unknown in southwest Oregon, and therefore, would require not require any survey. Known sites of Category A, B, C, D and E species require protection. Sensitive and Assessment special status species also require protection.

3.4.3.3 Port Orford cedar

This conifer tree species is generally found south of the Rogue River. It is confined to ultramafic rock types of the Rogue geologic formation. Though it prefers to reside in riparian areas, it can grow in other habitats. A small population of Port-Orford-cedar is also located in the Mule Creek drainage.

The root disease *Phytophthora lateralis* is present within the population growing in the upper portion of Mule Creek. However, trees on the southeastern corner of the planning area are thought to be free of root disease.

3.5 Fire and Fuels

Historic fires and ignitions were reviewed in the Wild Rogue North Watershed Analysis (WA) in some detail (WA pgs.56-59 and maps #15-Historic Fires and Ignitions, #16-High Fire fuels Hazard Areas, and #17-High Fire Ignition Risk Areas and Water Developments). This DEIS is referencing its analysis, but includes a portion of its write-up here for ease of understanding the long history.

3.5.1 Fire History

Historic natural fires in the watershed most frequently began in mid-summer and could continue to burn until autumn rains fell in October or November. This extended time period could often cause the fires to cover large areas. Although fires rarely burned at high intensities consistently across a landscape, in the 1870's inland fires in the Rogue Canyon could be seen by ships passing in the coastal waters at least 20 miles away. When high intensity fires did occur, they often reset the vegetative stand age to zero leaving soils vulnerable due to loss of vegetation and organic matter and increasing the likelihood of severe erosion.

Most fires were characterized by patchy, mosaic patterns, with areas of intense fire that killed overstory trees, but dominated by areas of low intensity underburns where only occasional trees or small patches of overstory trees were killed. Repeated, high intensity fires are revealed by the absence of older conifers on some sites that are now occupied by hardwoods. Evidence of low intensity fires is seen in most older conifer stands.

South-facing slopes typically experience a higher intensity of fire disturbance than north facing slopes. Large conifers on south-facing slopes generally have a patchy distribution, as compared to the north-facing slopes, which often have a more continuous canopy of larger coniferous trees. This is particularly noticeable on the south-facing slopes, where precipitation is 35-45 inches per year.

Fire records indicate ignitions occurred throughout the watershed. Two of the larger fires in the 1900s include the Quail Creek fire (2,800 acres in 1970) and the Galice Complex Fire (27,000 acres in 1987). Lightning is the most common source of ignition in this watershed. Due to the low summer precipitation and increased lightning frequency, July, August, and September are the months of greatest ignition activity.

Miners were one source of intentional ignition of fires; historically, they routinely burned areas along the Rogue River in order to open ground for mining. Native Americans were also a source of intentional ignition in this area prior to European settlement. Burning was done by Native Americans to encourage the resprouting of tanoak and to control pest populations. This practice also cleared the ground under the trees, which made hunting and seed and acorn gathering easier. They also burned along ridge tops to maintain travel corridors and openings for the production of hazel and beargrass, which were used for basket material one or two years after the site was burned. Big Meadows was one of most notable meadows maintained by the Native Americans.

Fire frequency and fire return interval vary throughout the planning area depending on stand characteristics, weather and topography. In the watershed, it appears that fires were probably more frequent and more intense in the hot, low elevation areas along the Rogue River than along the upper ridges where conditions were cooler and more moist. While fire frequencies varied a great deal, it is likely that the fire return interval for this watershed was in the order of 30-80 years (Agee 1993). The watershed experienced significant fires (500 acres or more) about every 20 years in the southeast portion of the watershed and about every 40 years around Murial.

Fire is directly linked with other disturbance factors. In conifer forests there are frequent post-fire insect attacks. Scorched trees are more likely to be successfully attacked by bark beetles and other

insects. Crown scorch on ponderosa pine at levels about 50 percent is associated with 20 percent or more mortality by western pine beetle in mature trees; younger trees can survive more than 75 percent scorch with about 25 percent mortality.

Throughout history, fire has swept through the East Fork Whisky Creek area. Exact dates of past fires are not known, but many of the older trees within the subwatershed have fire scars. Since fire has played a natural role in the ecological processes occurring in the area. Many of the older trees have fire scars, indicating past fire occurrence throughout the East Fork Whisky Creek area.

3.5.2 Fire Suppression and Management

Fire suppression efforts began in the early 1900s by the U.S. Forest Service but effective suppression in the area did not occur until after World War II. The Civilian Conservation Corps (CCC) began road construction into the area in the mid 1930s, converting some old trails into roads. With the advent of roads into the area combined with adequate personnel, suppression efforts became more effective.

Fire control has reduced the occurrence and the number of acres burned. Some vegetation manipulations, such as slash burning after harvest, are designed to reduce the spread of wild fires, to reduce fire intensity, and prepare the site for reforestation. Other management practices, such as pre-commercial thinning, would create short-term increase in accumulation of fuels, as well as the resulting risk of intense fires.

Current fire management still involves suppression of wildfires, both human-caused and natural ignitions. However, fire management has taken on several new directions that concentrate on fire prevention. Forested areas that are harvested on federal land usually receive some "prescribed fire treatment," ranging from broadcast burns to hand-piling excess woody material that can not be sold for firewood, followed by burning the piles. Prescribed burning is a multi-purpose tool used for removal of logging slash resulting from harvest and control of vegetation, which improves reforestation planting and success while reducing the likelihood of a catastrophic fire.

3.5.3 Current Fuel Characteristics

Three factors were used to assess fuels and the potential for fires:

- Fuel hazard - capability of fuels to carry a fire
- Fire risk - the probability of ignition
- Value - the relative potential for resource loss from a fire.

Fuel hazards were analyzed based on fuel models of different vegetation types. The highest hazard was related to brushy, light fuels and ladder fuels.

There were several aspects of high fire risk, including: ridge tops, where the probability of lightning strikes are highest, the major access roads which receive the most vehicle use, the Rogue River corridor, and the areas adjacent to private residences.

The following areas were considered high value:

- spotted owl core areas,
- the LSR,
- private residences,
- Tucker Flat campground and the Rogue River Ranch
- Ninemile communication site.

The Rogue River is available for helicopters to dip water for fire suppression.

The potential for uncharacteristic stand-replacing fires in this area, along with most of the Klamath Province, has increased due to fire suppression activities that began around the turn of the century. Historic lightning fire data within this area indicate that fires ranged from less than an acre to more than 21,000 acres. With fire suppression came an increase in dense vegetation in young and mature forest stands. The density of this vegetation has created ladder fuels, which have the potential to carry fire into forest canopies, increasing the risk of severe fire behavior. These types of fires make wild land fire suppression efforts difficult. The overall health of the forest has also been greatly compromised by this dense vegetation, due to the competition with trees for soil moisture.

Three factors were used to analyze fire management decisions: hazard, risk, and value. These factors are used to evaluate and set priorities for treatments while giving consideration to other management opportunities, such as wildlife habitat

enhancement. Areas where all three factors were rated as high were deemed highest priority for fuels treatment.

The planning area is primarily composed of BLM lands with small blocks of non-federal lands. These lands are considered "high hazard and high risk" because of the presence of potential ignition sources and the light flashy fuels. Many of these pieces of private land have been logged in the past several years with no subsequent slash reduction treatment.

Priority 1-high

Within these areas there are few instances where all three rating factors are "high." These include areas that received recent pre-commercial thinning (PCT) or brushing adjacent to well traveled roads, owl core areas, Critical Habitat Units (CHU) and within the Late-Successional Reserve (LSR) bordering non-federal lands.

Priority 2-medium

The second priority for fuels treatment include areas where high risk and high value overlap. In this area these consist of areas around spotted owl core areas, CHUs, lands adjacent to highly traveled roads, and heavily used recreation areas such as the Rogue River corridor, the back country byway and developed campgrounds. These areas are similar to the number one priority rating with the lack of recent PCT, brushing, or other management activities that create heavy slash loading.

Priority 3-low

The third priority for fuels treatment is where there are PCT, brushing, and other management activities not adjacent to well-traveled roads or near owl core areas and CHUs. This priority level may also include recreation use areas. The areas that have received PCT treatments exhibit a higher short-term hazard than unthinned stands of similar size and age. Generally, different stands are pre-commercially thinned each year creating new areas of high priority for hazard reduction treatments. PCT stands would fall from high priority for treatment as slash breaks down and decomposes, generally after the first three years.

3.6 Late-Successional Habitat

Late-Successional Habitat is defined here as late-successional forest that provides habitat for late successional species. For analysis purposes, stands modified by partial-cut harvesting where previous entry has occurred were generally not included as late-successional habitat. Late-successional habitat is widespread and generally abundant within the planning area. All major drainages, including the previously entered drainages of Kelsey, Whisky, and Mule Creeks, as well as along the Rogue River, contain substantial amounts of old-growth forest, which is defined as at least 10 percent stocked with trees of 200 years or older and 10 acres or more in size.

Taking into account factors such as degree of canopy layering, canopy closure, size of trees, and species composition, approximately 52,216 acres of late-successional habitat occur in the planning area. These areas provide available and functional habitat for spotted owl. Life requirements are met for nesting, foraging roosting and dispersal, with canopies multilayered and closure greater than 60 percent, or in more open areas where flight is possible, with canopy possibly single layered and closure also greater than 60 percent and.

Many large intact blocks of late-successional seral stage (Table 3-3) exist within the watershed, with old-growth patches ranging from 20 acres to over 2,000 acres of continuous habitat. The extent of late-successional forest is so widely distributed it may be more meaningful to consider the entire northern portion of the watershed as a large area of interior forest, with some minor fragmentation effects in portions of the Kelsey Creek and East Fork Mule Creek subwatershed, in the north and northeast sectors. Within the 97 square miles of the northern portion of the planning area, approximately 22 square miles are predominately in early seral stages.

Late-successional habitat within the northern portion of the planning area appears to be well distributed. Even where previous timber harvest has occurred, there are bands of older forest remaining, including along Whisky, Kelsey, and Mule Creeks. Whisky Creek contains old-growth bands along most of its length and mature forest where old-growth is not present. Kelsey Creek provides mature forest habitat along most of its length, although portions of it traverses through a naturally young stand.

Through a portion of the area around Mule Creek was heavily logged, a band of old-growth habitat remains along the main stem of Mule Creek and East Fork Mule Creek.

The planning area includes the northern part of the Galice Late-Successional Reserve (#OR-258) (LSR), the largest LSR in southwest Oregon. It is in the most suitable condition (USDA/USDI 1995) of any of the LSRs, with 60 percent of BLM acreage currently in late-successional habitat. The Southwest Oregon LSR Assessment (1995) indicates that approximately 47 percent of this LSR is currently late-successional habitat. It is estimated that 60% of BLM lands are in older forest, approaching the desired LSR objective of 70% in late-successional forest (Map 9).

Thousands of species are dependent upon late-successional forests for their continued survival, including a very broad range of vertebrates, invertebrates, fungi, and molluscs (FEMAT 1993). For many species, large blocks of unfragmented habitat are especially important for survival because they provide habitat buffered from manipulated areas. A more detailed description of source population habitat can be found in the Wild Rogue North Watershed Analysis (1999)

3.6.1 Late-Successional Habitat and Natural Disturbances

Late-successional habitat can be defined as... Late-successional habitat in this area is strongly influenced by fire (see Fire History above). Some low elevation stands have developed dense and overstocked tree understories. This density, combined with drought, has increased water stress on the older overstory trees. Also, on high fire risk areas stocked with a high proportion of pine or fir, it is suspected bark beetles have been killing trees at an increased rate. High stocking levels have increased fuel loading, especially in the plant associations which historically had frequent low and moderate intensity fires. Partial cuts in East Fork Kelsey Creek and Quail Creek areas have substantially increased the brush component, placing these areas at greater risk of stand replacement fire. Past clear cutting in the areas of Mule Creek, East Fork Mule Creek and North Fork Kelsey Creek has created additional risk of stand replacement fires through both brush invasion and new young plantations. This places older forest habitats at a greater risk to stand replacement fire.

Forest diseases do not appear to be affecting large areas within this watershed. Black stain, Swiss needle cast and white pine blister rust can eliminate trees which then creates natural openings of various sizes and shapes in isolated areas. Blister rust has the greatest potential to affect habitat. White Pine Blister Rust is present within the East Fork Whisky Creek subwatershed. Surveys for other pests or disease have not been initiated or completed. Other natural disturbances such as windthrow are more evident near ridges of mountains and in areas with deep soils.

3.6.2 Connectivity

There are two fully functioning connectivity blocks within the planning area, located in T 32S, R 9W, section 17, and T 33S, R 8W, section 9. Section 17 has approximately 60 percent of habitat in old-growth forest. Section 9 has approximately 80 percent in mature or old-growth condition.

Habitat connectivity facilitates movement and genetic exchange between or among species. A more detailed description of connectivity with adjoining watersheds can be found in the Wild Rogue North Watershed Analysis (1999). Late-successional connectivity for wide-ranging small mammals, including the fisher, and for more mobile species including the northern spotted owl is important for this area. The role it may play in connectivity at the provincial scale is underscored by the concepts underpinning the NFP. Specifically, it was intended that the two ranges, the Klamath/Coast Range, and the Cascades would be joined (and subsequently encourage population exchange) by the Siskiyou mountains (USDA/USDI 1998).

There are two areas of interest for connectivity to other watersheds. The first of these two areas includes the northeastern portion of the analysis area, including the East Fork Kelsey Creek and West Whisky Creek subwatersheds, intended to link the Galice/Fish Hook LSR eastward into East and West Forks Whisky Creek and the portions of the Grave Creek watershed identified for connectivity (USDI 1999) to the LSR to the east, the Galesville/South Umpqua LSR (Map 11). The second of these two connectivity bands is located in the northern portion of the analysis area, including the North Fork Kelsey Creek and Kelsey Creek subwatersheds, intended to link the Galice/Fish Hook LSR to the Bobby Creek Research Natural Area to the north. The Southwest Oregon Late-Successional Reserve (LSR) Assessment (1995) notes that the Fishhook/Galice LSR provides an

east/west older forest link connecting the coastal mountains across the Rogue Valley to the Rogue-Umpqua divide and the Cascade Province. The Grave Creek, West Fork and Middle Fork Cow Creek watersheds to the east and north consist of a checkerboard pattern of public-private ownership in which late-successional habitat is substantially reduced, providing barriers to connectivity. The extensive mature and old-growth component of the planning area is important in providing many source populations to adjacent areas which have been previously harvested on both public and private land.

It appears that those animals which depend upon late-successional habitat to successfully migrate and interbreed with other populations beyond this watershed can move in a generally east-northeast direction through well-connected late-successional habitats of the LSR and Matrix in the project area. The late-successional habitat connection from the LSR into Matrix lands within the planning area largely occurs along upper Whisky Creek, and in T 33S, R 8W sections 11,12,13, and 14. These sections currently contain approximately 25 percent old-growth (>200 yrs.), 25 percent late mature (151-200 yrs.), 30 percent early mature, 15 percent pole, and 5 percent early and mid-seral forested habitat.

The extreme northwest portion of the planning area includes the Wild Rogue Wilderness, estimated to have 30 percent older forest. The area to the west of the action area includes the Northwest Coast Late-Successional Reserve within the Siskiyou National Forest. The Wilderness Area probably provides some connection to the adjoining Northwest Coast LSR, which is managed for late seral conditions, and currently has many linkages of older forest habitat (USDA and USDI 1995). Connectivity to the west appears to be largely functional.

3.6.3 Snags and coarse woody material

Snags and coarse woody debris, key components of late-successional forest habitat, appear to be below RMP standards in portions of the planning area. One possibility is that these areas may be low due to previous commercial harvesting and salvage. The only available data comes from the Cold Mule timber sale in Mule Creek, where five units, totaling fifty acres, or one-tenth of one per cent of the watershed, were sampled. Pre-project implementation monitoring indicated adequate snag

levels on the five sampled units, ranging from 2.1-5.1 per acre. However, coarse woody debris levels ranged between 128-360 linear feet per acre on half of the sampled area, and no coarse woody debris on the other half. A field review of snag and coarse woody debris conditions in East Fork Kelsey Creek and Kelsey Creek also indicated low levels of

3.6.4 Survey and Manage Animal Species

Red Tree Voles

Red tree voles are also a Survey and Manage species and generally occur in forested stands older than 40 years, with old-growth appearing to provide optimum habitat because of its function both as a climatic buffer and with its high water-holding capacity which maximizes food availability and free water (Gillesberg and Carey 1991). Limited surveys for this species have been conducted within the watershed, primarily in the area of the Cold Mule timber sale. Currently it is estimated that 38,010 acres of suitable red tree vole habitat are present within the watershed.

Great Gray Owls

Great gray owls are a protection buffer species in the NFP. They are uncommon and associated with conifer forest adjacent to meadows. There are about 300 acres of suitable meadow habitat in the northwest portion of the planning area. While there was an unconfirmed detection of this species near Big Meadow in the mid-1990s, this meadow complex was surveyed to protocol in 1998 and 1999, with no detections of great gray owls.

Molluscs

Under the Survey and Manage SEIS, there are two species of terrestrial mollusc which are suspected to occur in the planning area, the Oregon shoulderband snail (*Helminthoglypta hertleinii*) and the Chace sideband snail (*Monadenia chaceana*). The Oregon shoulderband frequents both rocky areas and hardwood stands. The Chace sideband is known to use talus areas and moist late-successional forests. No Survey and Manage aquatic mollusc species are known or suspected to occur within the watershed.

Del Norte Salamanders

Del Norte salamanders were identified as a Survey and Manage in the NFP. Under the Survey and Manage SEIS they are in category D1, which means that high priority sites require protection, but no pre-disturbance surveys are required. All known sites are required to be protected until high priority sites have been established. They have been found in the watershed, and based on soil information and vegetative characteristics, it is suspected that they are widely distributed across the watershed.

3.7 Special and Unique Habitats

Special or unique habitats include meadows, cliffs, springs, caves and other habitat features. They account for a small amount of the total land base, but are important as wildlife habitat and are often highly fragile. Meadows are also uncommon in the planning area, and so are included in this category.

Two small meadows are located near the north edge near Anaktuvuk Saddle and have been burned to improve forage conditions. Two other meadows are located near the Big Meadows area. One is called Bald Ridge and is characterized by large erosion gullies and slump fractures. The other is a similar meadow on a ridge between Quail Creek and Ditch Creek.

There are widely scattered springs and a few man-made ponds and pump chances which provide habitat for waterfowl, reptiles, amphibians, and invertebrates.

Large areas of cliff and rock outcrop habitat occur within the Wilderness and along the Rogue River. These areas provide potential habitat for many unique wildlife species, including the peregrine falcon, and the golden eagle. There is currently one known peregrine falcon eyrie in the southeast sector of the watershed. There is one known golden eagle nest in cliff habitat along the Rogue River (USDA/USDI 1995).

3.8 Wildlife

3.8.1 Threatened, Endangered and Other Species of Concern

Special status species in the planning area are listed in Appendix 8 and include several classifications, among which are:

- Federally Threatened or Endangered species which are listed under the Endangered Species Act.
- Protection Buffer and Survey and Manage Species, which include those species identified in the Northwest Forest Plan and the Medford District Resource Management Plan as needing special consideration due to their association with late-successional habitat.
- Bureau Sensitive species, those species which the Bureau of Land Management considers to be of concern and which may have the potential in the future to become federally listed.
- Bureau Assessment species, those species considered as important to monitor and manage to prevent elevation of status to a higher level of concern.
- Species identified by the state of Oregon as warranting special attention, either through listing under the Oregon Endangered Species Act, or identified as an Oregon Special Status Species
- Neotropical Migratory Landbirds, those bird species which winter south of the Tropic of Cancer and breed in North America, many of which are in decline.

There are at least 60 potential sensitive species of wildlife in the watershed. The four species listed as threatened are discussed in detail in the following sections.

3.8.1.1 Northern Spotted Owls

Northern spotted owls are currently listed as a threatened species under the Endangered Species

Act. A decrease in the habitat for spotted owls, as a result of timber harvest of mature and old-growth forests was the primary reason for listing (USDI 1994). Spotted owls nest in cavities or platforms in stands of mature or old-growth forest with high levels of canopy closure.

There are a total of 28 owl activity centers in the watershed, 13 north of the Rogue River and 15 south of the river. An activity center is considered viable if there is at least 40 percent of the area within a 1.3 mile radius in a suitable habitat condition. Suitable habitat generally consists of stands with trees greater than 21" dbh with 60 percent or greater canopy closure. In this watershed, 15 of the 28 activity centers are in viable condition, indicating a relatively healthy late-successional condition, although most of those viable activity centers (12) occur north of the Rogue River. Therefore, there is some concern for suitable northern spotted owl habitat in the southern portion of the watershed.

There are approximately 52,216 acres of suitable nesting, roosting, or foraging habitat for northern spotted owls in the planning area (Map 10), or 53 percent of the watershed. The percentage of suitable habitat in the north portion of the watershed is considerably greater than in the south, with approximately 66 percent of the land in suitable owl habitat condition.

Critical habitat for the northern spotted owl is a legal designation under the Endangered Species Act. This watershed includes northern spotted owl Critical Habitat Units (CHUs) #OR-65 and #OR-67 (Map 11). OR-65 consists of approximately 9,630 acres, located in the eastern part of the planning area. Most of OR-65 is within Late-successional Reserve but the remainder is found on General Forest Management Area land in the northeastern portion of the planning area. Specifically, this area includes T 32S, R 9W, sections 1, 12, and 13; and T 33S, R 8W, sections 4, 5, 6, 7, 8, 9 and 14.

Within critical habitat unit #OR-65 there are a total of 3,093 acres in Riparian Reserves, 317 acres in owl cores, 2 acres in late-successional reserve, and 1,984 acres in TPCC withdrawn lands, for a total of 5,396 acres, or 56 percent of the CHU being unavailable for planned timber harvest. The other 3,235 acres are currently available for harvest, or 44 percent.

Only a small portion of Critical Habitat Unit #OR-67 overlaps the northwest part of the planning area. It is immediately east of the Wilderness Area with two

additional small sections at the western boundary.

Proposed Area of Critical Environmental Concern

The East Fork Whisky Creek subwatershed has several high wildlife habitat values due to the large amount of undisturbed and unfragmented old growth conifer forest, the high quality riparian zones, and the range of elevation. Several important wildlife species have been observed in the area including the federally threatened Northern Spotted Owl. There is currently one nesting pair (One 4 All, see Table 4-8)) of spotted owls within the East Fork Whisky Creek subwatershed. In addition, habitat potential exists for additional species which have been observed in and immediately south of the subwatershed such as the Peregrine Falcon, Bald Eagle (Federal Threatened), and Townsend's Big-eared Bat (Bureau sensitive and species of concern).

3.8.1.2 Marbled Murrelets

Marbled murrelets, a federally threatened species, use inland forested sites for nesting. They nest exclusively in trees, typically in late-successional forest with greater than 60 percent canopy closure, within about 35 miles of the Coast. In southwest Oregon, no murrelets have been found east of this 35-mile line. Since 1995, there have been over 600 survey visits for marbled murrelets within the watershed, with no confirmed detections. This is not unexpected, since studies by the Siskiyou National Forest strongly suggest that in this part of southern Oregon, murrelets typically do not fly beyond the first major coastal ridge, about 12 miles from the coast, south of the Elk/Coquille drainages (Dillingham et al. 1993).

Critical habitat for the marbled murrelet was designated in May, 1996, and includes CHU #OR-07-F within the analysis area (Map 12). Portions of the watershed are considered critical marbled murrelet habitat because they occur within 35 miles from the coast. The CHU lies entirely within the Late-Successional Reserves within 35 miles of the coast, and comprises approximately 14,253 acres within the watershed.

3.8.1.3 Bald Eagles

Bald Eagles are a federally threatened species and have recently been proposed for de-listing. Suitable bald eagle habitat in the watershed occurs primarily along the Rogue River and many of the side

drainages, including Whisky and Kelsey Creeks. There is one active nest within a few miles of the confluence of the Rogue River and Whisky Creek. Preferred nesting habitat usually consists of older forests near water, with minimal human disturbance.

3.8.1.4 Southern Oregon Coho Salmon

Of over 850 miles of streams in the planning area, an estimated 50.7 miles area provide habitat for Southern Oregon coho salmon, which has been listed as threatened under the Endangered Species Act. The Rogue River provides the largest portion of that habitat, 20.0 miles. The second largest portion, 11.5 miles, is on Mule Creek. Riparian Reserve habitat on fish-bearing reaches of Mule Creek and tributaries is largely untouched by human activity.

Coho salmon also inhabit East Fork Whisky Creek. East Fork Whisky Creek is one of very few streams in the Medford District that has been minimally affected by timber harvest, road construction or other land uses known to adversely affect streams and the native species that they support.

3.8.1.5 Other Species of Concern

Northwestern pond turtles, a species of concern, have not been observed using the watershed's small ponds, but are frequently observed along many sections of the Rogue River, where there are slow-moving river sections. Pond turtles were petitioned for listing under the Endangered Species Act in 1992 but have not been listed to date.

Tailed frogs, a species of concern, have been located in the planning area. This amphibian species, thought to be confined to turbulent streams in late-successional forest, is considered to be a potential for listing, with very low recruitment rates compared to other frogs, as well as a longer generation time.

This watershed lies within the Pacific Flyway, utilized by a wide variety of migratory birds. Waterfowl are likely to occur along the Rogue River, including species of concern such as the Harlequin duck, which uses fast-flowing water.

3.8.2 Other Wildlife Species

The Oregon Department of Fish and Wildlife (1993) notes that the relatively small Klamath Province supports the highest number of vertebrate species of any province in Oregon.

3.8.2.1 Game Animals

There is historical information which indicates that in the late 1800s and early 1900s, elk and deer were abundant in the vicinity of Illahe (USDA 1938) and were frequently harvested not only for meat, but also for hides. This report cited information which indicated that hide hunters were driven from the area by the early settlers, who depended upon elk and deer for food. Bald Ridge and Ninemile were cited in this report as historical locations where elk had occurred.

Several meadows in the watershed provide habitat for elk. Big Meadows, as mentioned earlier, is a 200-acre opening in private ownership located near the divide between East Fork Mule Creek and the Rogue River.

The Mule Creek area was identified as a priority for elk management in cooperation with the Oregon Department of Fish and Wildlife (ODFW). This drainage was analyzed for elk habitat suitability using the Wisdom elk model (Wisdom et al 1985), which assesses habitat effectiveness indices. The analysis indicated spacing, forage, and road density were all very low, while the cover index was a bit higher. That information led to efforts in the late 1980s and early 1990s to increase available forage through burning and seeding clearcuts. In addition, a major road management plan was instituted, resulting in motor vehicle road closures on approximately 43 miles of road. Prior to the road closures, the Mule Creek drainage had an open road density of 4.6 miles of road per square mile. Following road closures, the open road density dropped to 1.8 miles of road per square mile, close to the ODFW recommendations of no more than 1.6 miles of road per square mile for elk management. Following road closure, 500 native brush and shrub seedlings were planted along closed road beds and cut banks to improve foraging opportunities.

Black bears are believed to be relatively abundant throughout the analysis area, primarily due to large blocks of undisturbed habitat, proximity to the Rogue River, and large areas with low road densities. Bears were evidently abundant in the watershed at the turn of the century, according to an

interview with Wallace Rondeau, who lived in the area in the early 1900s (Shaffer 1983). According to the Oregon Dept. of Fish and Wildlife (M. Wolfer, pers. comm.), black bear densities in the analysis area probably exceed one per square mile. A 1987 report (ODFW 1987) notes that the heaviest bear densities in the state occur in southwestern Oregon. All lands within one mile of the river are closed to black bear hunting.

Mountain lions are thought to be common in the analysis area. A historic report by Siskiyou National Forest refers to a large cougar population in the watershed (USDA 1925) and the number of sightings has been increasing.

3.8.2.2 Other Animal Species

American martens, a member of the weasel family, are considered to be indicator species of old-growth habitats in Oregon, where they are closely tied to large quantities of standing and downed snags and coarse woody debris, often near streams (Jones and Raphael 1990). They select dense cover extending above the snow, and in winter they utilize tunnels to access the area below snow level. They have been documented in the late-successional reserves of southwestern Oregon (USDA/USDI 1995). Fishers, also a medium-sized member of the weasel family, are a rare carnivore associated with dense, mature, and old-growth forest stands (Powell 1982), and adults are associated with large habitat blocks. Fishers are known to use riparian areas as travel corridors in both winter and summer (Jones 1991). Resting sites in California have been found to be associated with snags and abundant downed logs (Buck et al. 1983), and natal sites have been found in cavities of live or dead trees (Banci 1989). A fisher was observed in the watershed in 1996 by a BLM biologist, in the southern sector in the vicinity of the Galice access road. The unfragmented nature of the majority of the watershed suggests this area may support a fisher population.

Ringtails, an uncommon cat-sized nocturnal mammal, are known to occur in southwest Oregon, with the Klamath Province identified as their center of abundance in the state (ODFW 1993). With extensive rocky terrain and abundant tanoak, this area is believed to support a healthy ringtail population. These nocturnal mammals have been spotted several times along the Rogue River and the Galice Creek road in the eastern portion of the watershed.

3.8.3 Fisheries

There are approximately 856 miles of streams within the planning area. Steelhead trout, cutthroat trout and sculpin are among the fish which are found in the analysis area along with the Southern Oregon coho salmon. Only an estimated 81 miles of these streams are thought to contain fish (Table 3 - 4). Included in this estimate is approximately 20 miles of the Rogue River itself. The low miles of streams with fish is a result of very steep channels and natural fish passage barriers such as waterfalls as indicated by Oregon Department of Fish and Wildlife survey information of the area.

With the exception of main stem Mule Creek and North Fork Mule Creek, fish habitat in the planning area is functioning properly because of little or no land management activity. With about 75 percent of the Riparian Reserves in the Wild Rogue North watershed greater than 80 years of age, the majority of these areas are in proper functioning condition and will continue to be since they are protected from future timber harvest under the Northwest Forest Plan. This means that riparian connectivity throughout the watershed is very high, a benefit not only to the aquatic organisms and processes but also to terrestrial plants and animals that use these areas as travel corridors. High road density in the Mule Creek subwatershed (approximately 4.7 miles per square mile) is probably responsible for low to moderate biotic integrity as measured through aquatic insect population characteristics and for high substrate embeddedness. Degraded substrate has negative implication for fish spawning success and winter refugia, as well as for aquatic macroinvertebrate community composition and abundance. Peak flows may be affected by the high road density and associated increase in the drainage network through road ditch lines.

Although significant Riparian Reserve habitat on fish-bearing reaches of Mule Creek and tributaries is in largely pristine condition, timber harvest prior to implementation of the Northwest Forest Plan removed considerable late-successional habitat on many non-fish bearing perennial and intermittent streams. About 74 percent of Riparian Reserve habitat in the Mule Creek subwatershed is in late-successional condition and only about 2 percent is non-forest. The remainder is in early and mid-seral stage condition due to wildfire and past timber harvest. Upper Kelsey Creek has been moderately affected by timber harvest activities, including road building. Overall, adverse effects on fish habitat in Kelsey Creek appear to be minimal.

Use of the Klamath Province/Siskiyou Mountains Matrix of Factors and Indicators indicates that fish habitat on the mainstem, east and west forks of East Fork Whisky Creek is in proper functioning condition. Summer water temperature, one of the most important limiting factors for salmonids is southwest Oregon, is consistently less than 60F, even during drought years. Habitat analysis using aquatic macroinvertebrates as indicators, indicates that habitat integrity in the East Fork Whisky Creek is moderate to high.

3.9 Timber Resources

Productivity in the watershed ranges from relatively low productivity (i.e., site classes 4 & 5 in the east and in the Wilderness Area) to higher productivity in Mule Creek (i.e., site class 3 & 4). The higher productivity in Mule Creek is due to higher levels of precipitation and richer soils. The sites with the lowest productivity, or high potential for reforestation failure, have been withdrawn from intensive timber management through the Timber Productivity and Capability Classification.

Historically, timber harvesting has been minor to non-existent in the less productive Whisky Creek, Big Windy Creek, Howard Creek, Horseshoe Bend, Missouri Creek and southern Kelsey Creek drainages due to low volume per acre and high road construction costs. These low productive sites are in contrast to the more productive Mule Creek drainage, where a substantial amount of timber has been removed.

Timber harvest in the last fifty years was accomplished through a variety of methods. Partial-cut and salvage harvest units are evident in the East Fork Kelsey Creek and Quail Creek drainages. Many of these units were logged during the 1970s. Typically, the harvest removed about one-third of the volume and most of the large snags. These stands are now dominated by a large conifer overstory above an undifferentiated understory of brush and conifer saplings.

Heavier partial cuts occurred primarily in East Fork Mule Creek and Mule Creek subwatersheds. The residual stands contain a sparse conifer overstory over a mixed understory composed of conifers, brush, and hardwoods.

Clearcutting practices began in the 1950s and reached their peak in the 1980s. Discrete patches were created within the older stands and were connected by a network of roads in the Mule, East Fork Mule, North Fork Kelsey, and Ditch Creek subwatersheds. Several clearcuts occurred historically, along the edges of the East Fork Whisky Creek subwatershed and are of various ages, with a few clearcuts within the boundaries of the subwatershed.

All of the old-growth timber on private land has been cut. State of Oregon lands have also harvested most of their larger trees. Recent harvest on private land has removed smaller trees left in previously logged lands and also second or third growth stands.

Partial cutting has resulted in stands frequently deficit in large snags and downed wood. In locations with a high component of live oak (*Quercus chrysolepsis*) and madrone (*Arbutus menziesii*), low levels of snags and coarse woody debris may be a reflection of natural conditions.

Proposed Area of Critical Environmental Concern

A portion of the East Fork Whisky Creek subwatershed is currently designated General Forest Management Area and a portion Late-successional Reserve (Table 2-1). Much of the area is currently withdrawn from the timber base (Map 10-3a, Map 10-3b) because of several factors which include riparian zones, Spotted Owl Core areas, and soils and slope limiting factors. Several units, comprising 67 acres, have been harvested. There is only one unit (9 acres) that is early seral. This unit received brushing and release treatment in 2001.

3.10 Roads/Transportation System

Virtually all the roads within the planning area were originally constructed to provide access for timber harvest or fire control. Some roads were constructed to provide access to private lands, especially along the Rogue River, or for recreational access to the river. Road density analysis within the 5th field watershed is described in the Wild Rogue North Watershed Analysis. Road density

can be used to measure drainage alteration and increase of intermittent stream channels created by a variety of existing road prisms that interrupt the landscape. The East Fork Whisky Creek subwatershed has only one road extending partially into it. This unroaded character has remained relatively undisturbed by timber harvest and is seemingly wild and natural.

Three primary routes provide major access to the Kelsey Whisky EIS area. The Mt. Reuben road, Bobby Access Road, and Dutch Henry road. All of these roads have been used for log hauling. The Mt. Reuben road is the oldest route, which was improved from its origins as a primitive route to Marial. The Dutch Henry road was the first major log haul route from Kelsey Mule road to Glendale. The Bobby Access road was constructed by the United States Federal Highways Administration as a more direct route for log haul to Riddle. Since log hauling has declined sharply, these roads now provide some redundancy of access.

Road maintenance is conducted by the different land owners and management agencies. BLM maintenance levels range from minimal standards on short spur roads to high standards on main access roads. The goal is to provide a transportation system for various recreational activities, private access, logging, fire fighting access, and other land management uses.

Roads maintained at a high level in previous years are not being maintained to that extent any longer. To reduce maintenance requirements and erosion potential, some un-needed roads have been decommissioned. Other roads are gated or blocked until future access is needed and many others are maintained at the lowest possible levels. BLM roads have a maintenance level assigned to them as a guide for the amount and frequency maintenance should be performed (Appendix 3). Roads are monitored and maintenance levels are modified when needs and conditions change. Most roads in the area were originally constructed with a ditch on the inside, and cross drain and bottom lay culverts installed to facilitate drainage. Over time, the ditch lines have sloughed in and many culverts have become plugged with sediment.

BLM roads are generally open for public use unless blocked by gates or other methods. Gates and other road barriers regulate vehicle access to reduce maintenance costs, soil erosion, transfer of noxious weeds, and wildlife disturbance, mainly to protect elk habitat areas.

Non-federal roads in the area generally are not surfaced, but are frequently maintained to provide seasonal access to homes in the area and for timber management.

Many spur roads in the area have ditch lines that are partially or completely filled with slough from cut slopes. Many cross drain culverts are partially or completely blocked with sediment from ditch lines. Water dips properly installed can help minimize road damage from erosion that results from rain and overland water flow. In the Kelsey Whisky area very few of the roads were constructed with water dips. Most road surfaces, however, are not badly scoured or rutted, and most spur roads are free from major slides or debris blocking the roads.

Road information analyzed at the sixth-field subwatershed level show that the area most heavily affected and of greatest management concern is the upper Kelsey Creek drainage. Information has been analyzed at the sixth-field watershed level and shows high road densities in the area. Most road construction and harvest activities occurred in the late 1980s. Spur roads to harvest units were generally not surfaced. These roads are showing more erosion than in other drainages due to lack of surfacing and lack of maintenance.

Fish passage is not an issue for most of the streams in the area, but sedimentation is a concern in some problem areas such as Mule Creek and upper Kelsey Creek where road density is moderate to high. Both streams support anadromous and resident fish.

Paved roads (Table 3-5) are generally maintained for more user comfort and convenience and to connect major administrative features. Paved roads provide a higher volume of commercial and recreational traffic than administrative traffic. The entire roadway is maintained at least annually. Maintenance problems are repaired as they are discovered. The life of a paved road without re-sealing is about 15 years but can vary, depending on the amount of hauling occurring on the road. Natural weathering processes also deplete paved roads, such as frost heave, summer heat, dilution by rain water and break up due to over growth along the road way. The paved roads in the planning area are identified in Table 3-5. Roads with existing reciprocal rights-of-way are listed in Table 3-6.

There are developed sources in the watershed where water may be acquired for use on the roads. Some water sources are in need of improvement to increase water supply for both wildlife and road

maintenance needs. Water is used when placing surface rock and for road maintenance, which permits proper processing and reduces segregation of the road surfacing material.

Proposed Area of Critical Environmental Concern

Currently there is one road, (34-8-1) that borders the East Fork Whisky Creek ACEC along the eastern and northeastern boundary. This is a gravel surfaced road. Two more roads, which are natural surfaced, are currently being considered for decommissioning. These are ridge top roads that are grown in and no longer passable by vehicles (33-8-23 and 33-8-11.1). There is a trail or fire access route on the ridge top between the east and west forks of Whisky Creek.

3.11 Social Environment

3.11.1 Rural interface

Private parcels within the planning area range in size from about 20 to more than 300 acres. Most of these are clustered near Marial, west of Kelsey Creek. Exceptions are mining claims in the Whisky Creek drainage, Black Bar Lodge and two parcels in the Meadow Creek Drainage. Many of the private parcels within the planning area are actively managed for timber or mineral extraction with entries occurring within the last 5 years.

There are about nine residential structures on private land within the planning area, including three within the river corridor. About half of these structures are occupied on a year-round basis and one, Black Bar Lodge, is a commercial enterprise. All are currently surrounded by public land, managed as a Late-Successional Reserve and most are within an area classified as possibly seen from the river corridor, implying probable limitations on management actions on Federal lands in the surrounding area. None of these parcels were identified as Rural Interface Areas in the Medford District Resource Management Plan (RMP), although some of the parcels with residences do meet the criteria described in the RMP.

Major issues related to rural interface management within the planning area would likely be those identified in the RMP as creating the greatest

impact on interface areas, including: fire and fuels management and related effects such as smoke, visual resource management and protection of views from within residences in the area, short- and possibly long-term increased noise levels, and dust and other problems associated with increased vehicular traffic.

3.11.2 Recreation

Dispersed recreation such as hunting, driving for pleasure, and cycling are the primary uses within the planning area. The Grave Creek - Marial National Back Country Byway starts at Grave Creek and skirts the eastern edge to Ninemile Mountain then bisects the area to the western edge at Marial on the Wild Section of the Rogue River. The 34-8-1 road serves as the eastern boundary and is currently a designated Back Country Byway to Marial. There are several vista opportunities along this route that provide very good looks into the East Fork Whisky Creek as well as into the Rogue Canyon in the distance. The route from Ninemile Mountain to Marial is the only vehicular access into the Wild Section and is used by land owners, government agency employees and members of the public accessing recreation facilities in the area, primarily at Tucker Flat Campground and trail heads for the National Rogue River Trail and the Wild Rogue Wilderness. The route from Grave Creek to Ninemile Mountain and continuing west on the Kelsey-Mule Road is used as an alternate shuttle route for winter rafting on the Rogue River. Usage monitoring on the route from Ninemile to Marial completed in approximately 1996 determined use averaging less than 25 vehicles a week. No further studies have been completed but staff observations in the area seem to indicate that use has remained fairly consistent with previous surveys.

The Rogue River is a popular recreation resource on a national scale. It attracts thousands of recreationists annually, for rafting, fishing and hiking. Within the planning area, the river has been designated a Wild and Scenic River. The Rogue River trail is located on the north side of the river. Virtually all of the use associated with the river is concentrated within a few hundred yards of the river, rarely extending north of the trail.

The Glendale-Powers Bicycle Area - Main Route, designated in 1993, runs along the northern edge of the planning area and utilizes the Kelsey-Mule Road from Ninemile Mountain to the end of the Kelsey-Mule Road where the Dutch Henry Road crosses from the Umpqua Drainage to the Rogue River

Drainage at the headwaters of the West Fork of Whisky Creek. Bicycle use on the route is light but has increased in recent years with several group events with use totaling more than 100 participants. Vehicular use on the route has remained fairly constant with an average of less than 100 vehicles a week in the warmer months.

Hunting use of the area seems to be most concentrated in the Mule Creek Drainage and appears to be relatively light based on staff observations. Much of the Mule Creek Drainage has been closed to vehicular use and has probably resulted in some reduction in hunting use in the planning area.

Recreation sites in the planning area are very limited. Rainie Falls and Whisky Creek Overlooks on the Mt. Reuben Road just west of Grave Creek, Tucker Flat Campground at the mouth of Mule Creek, Buck Prairie trail head on the western edge of the West Fork of Mule Creek Drainage, Mt. Bolivar trail head on the Kelsey-Mule Road at the head waters of Arrasta Fork of Mule Creek, and Cold Springs at the headwaters of Mule Creek are the primary sites outside of the river corridor. Total use at these sites is not accurately determined but estimates, based on staff observations and on-site voluntary visitor registration forms, place the number at less than 250 a year for any given site.

3.12 Visual Resources (Map 14)

Land within the Congressionally-designated Rogue Wild and Scenic River corridor and the Wild Rogue Wilderness are classified as VRM Class I requiring that the existing character of the landscape be preserved. There are approximately 15,180 acres in this category.

The Medford District Resource Management Plan established that areas seen from the Wild Section of the Rogue National Wild and Scenic River and outside of the designated corridor would be managed as Class II Visual Resource Management (VRM) areas. Management direction for this area is to retain the existing character of the landscapes, allowing for low levels of change to the characteristic landscape and activities which did not attract the attention of the casual observer. Seen areas generally fall within one mile of the river, but may reach farther in areas with steep elevation changes. The inventory done for the RMP indicated that there were approximately 32,696 acres

classified as VRM Class II. A more accurate inventory for this analysis was conducted using a more intensive, GIS-based process. As a result, it appears that a more accurate estimate of the VRM Class II lands is 26,364 acres. This does not represent a change in the RMP decision, but rather a more detailed analysis than was possible when the RMP was established.

Rural interface areas, BLM-administered land within one-quarter mile of private lands zoned for 1-5 acre or 5-20 acre lots, are managed as VRM class III, allowing moderate levels of change to the existing character of the landscape. All other areas are managed as VRM IV allowing for major modifications of the existing landscape character.

Some of the planning area was burned in the Quail Creek Fire and later in the Galice Complex Fires. Evidence of these incidents are visible from within the Class I, II and III VRM lands.

3.13 Population and Economic profile

3.13.1 Introduction

The Kelsey-Whisky Creek Study Area is located within BLM's Glendale Resource Area. The area is located primarily in Curry, and Josephine Counties, with a very small portion in Douglas County. Primary access to the area is from the I-5 corridor via the Merlin-Galice Road. This road is a designated back country byway. Additional access point communities include Wolf Creek and Glendale from the East and Agness and Powers from the West. No communities are located in the study area. (USDI, BLM, 1992) To effectively compile an economic profile of the area, Coos, Curry, Douglas and Josephine Counties were selected as the analysis unit. This is a very large area relative to the Kelsey-Whisky Creek study area but has been selected to encompass all of the access point communities. The major economic and population centers in this portion of southern Oregon are Coos Bay/North Bend (Coos County), Roseburg (Douglas County), and Grants Pass (Josephine County). Medford is also a major population and economic center located outside the profile area in neighboring Jackson County, approximately 45 miles via car from the Kelsey Whisky Creek study area boundary.

The nearest communities with commercial air service are Medford and Coos Bay. The nearest Amtrak service is in Eugene. Visitors to the area generally arrive by motorized vehicle. Commercial recreation services also provide transportation for their customers, primarily visitors using the Rogue Wild and Scenic River.

3.13.2 Study Area Profile

3.13.2.1 Population, Age Distribution, and Ethnicity

For the unincorporated access point communities of Powers, Agness, Merlin, and Wolf Creek/Sunny Valley 1990 Census information by zip code is available. Population for these communities is as follows: Powers, 966; Agness 122; Merlin, 1996; and Wolf Creek/Sunny Valley, 1,296.

Southern Oregon counties have relatively high percentages of population ages 65 or older when compared to statewide rates. While demographic changes since 1990 have increased the number of people in this age group it is representing a smaller portion of total population in Oregon as a whole. In contrast to the southern Oregon counties of Coos, Curry, Douglas, and Josephine which increase in number and proportion (Wineburg, 1998). Information on age distribution and immigration suggests that Coos, Curry, Douglas and Josephine counties are all attracting retirees.

Coos, Curry, Douglas and Josephine counties, like Oregon as a whole have limited ethnic diversity. Native Americans are represented at a rates greater or equal to the overall state rate throughout the region. Of particular interest is the access point community of Agness. During the 1990 Census, 45 of 122 persons in that zip code were reported to be Native Americans.

Native American residents may participate in unique cultural practices associated with reserved treaty rights. Activities may include, fishing, hunting, and gathering plant materials for food or ceremonial purposes. No reservation lands are located in the Kelsey-Whisky Creek area.

In some areas, collection of special forest products is closely associated with Hispanic and/or Asian ethnic groups.

No other ethnic groups in these counties are known to be associated with public land resources through unique cultural, historical, or employment practices.

3.13.2.2 Employment and Wages

In 1999, an estimated 24,920 people were working in Coos County. This includes approximately 3,530 self-employed persons. An estimated 2,340 people were unemployed in 1999. Federal, state and local government was the largest employment sector with 5,680 employees. The lumber and wood products industry is the dominant manufacturing employer, with 1,380 of the 2,550 manufacturing employees. Lumber and wood products employment has declined by 990 jobs, or 41.8 percent, since 1990 (State of Oregon, Employment Department, Various Years).

The construction and services sectors have been the leading growth sectors. The construction sector employed 850 people, up 23.2 percent since 1990. The services sector employed 4,690 people in 1999, up 38.3 percent since 1990. Overall, Coos County has been experiencing slow employment with growth in construction, services, and government just barely offsetting losses in manufacturing, and transportation, communications, and utilities (State of Oregon, Employment Department, Various Years).

In 1999, an estimated 7,750 people were working in Curry County. This includes almost 1,490 self-employed persons. Wage and salary workers were more common, totaling 6,260. Trade was by far the largest employment sector with 1,830 employees in 1999. This was followed by services with 1,300, and government with 1,290. The lumber and wood products industry is the dominant manufacturing employer, with 630 of the 890 manufacturing employees. Lumber and wood products employment has declined by 100 jobs since 1990 (State of Oregon, Employment Department, Various Years).

The services sector has been the leading growth sector in Curry County since 1990, up 36.8 percent. Growth in all the non-manufacturing sectors has offset employment losses in manufacturing and government. Overall, the civilian labor force in Curry County has declined by 1,400, or 14.3 percent, since 1990. This counteracts the underlying population trend which increased by 2,723, or 14.1 percent, during the same period. Two factors are at work to cause this unusual situation. First, is the increase in retirees and

population over age 65. Retirees and seniors are generally not working or seeking work, thus do not count as part of the civilian labor force. In addition, discouraged workers who have been unemployed for a long period may have given up seeking new employment, thus do not count as part of the civilian labor force (State of Oregon, Employment Department, Various Years). Unemployment, although higher than in 1990, has been on a downward trend since 1997.

In 1999, an estimated 41,020 people were working in Douglas County. This includes approximately 3,790 self-employed persons. An estimated 4,220 people were unemployed in 1999. Trade, services, and government was the largest employment sectors, all with over 8,000 employees. The lumber and wood products industry is the dominant manufacturing employer, with 6,360 of the 8,060 manufacturing employees. Lumber and wood products employment has declined by 1,870 jobs, or 22.7 percent, since 1990 (State of Oregon, Employment Department, Various Years).

The construction sector has been the leading growth sector. The construction sector employed 1,590 people, up 59.0 percent since 1990. Overall, Douglas County has been experiencing good employment with growth in non-manufacturing sectors offsetting losses in manufacturing (State of Oregon, Employment Department, Various Years).

In 1999, an estimated 26,680 people were working in Josephine County, which includes approximately 4,830 self-employed persons. An estimated 2,440 people were unemployed in 1999. Trade and services were the largest employment sectors with 5,880 and 5,790 employees respectively. The lumber and wood products industry is a major manufacturing employer, with 1,370 of the 3,270 manufacturing employees. Lumber and wood products employment has declined by 640 jobs, or 31.8 percent, since 1990 (State of Oregon, Employment Department, Various Years).

The construction and services sectors have been the leading growth sectors. The construction sector employed 1,040 people, up 65.1 percent since 1990. The services sector employed 5,790 people in 1999, up 43.7 percent since 1990. Overall, Josephine County has been experiencing good employment with growth in construction, services, and government more than offsetting losses in manufacturing. (State of Oregon, Employment Department, Various Years)

3.13.2.3 Personal Income and Poverty Rates

Per capita personal income in southern Oregon was well below Oregon's statewide level of \$25,912 in 1998. The region also had a higher portion of income derived from transfer payments than the state as a whole. Transfer payments include Social Security payments, Aid to Families with Dependent Children, unemployment compensation, disability payments, and other government payments. Typically transfer payments are a major source of income for retirees and low-income people. The percent of income derived from dividends, interest, and rent was also higher than statewide. This income represents returns on accumulated assets held by individuals and is often a large portion of income for the self-employed and retirees. Earned income, typically wages and salaries was below the statewide proportion. The distribution of income by source is not unexpected given the skewed age distribution in southern Oregon, particularly Coos and Curry counties.

The poverty rate estimate for 1997 in each of the counties was as follows: Coos, 16.7 percent; Curry, 13.9 percent; Douglas, 14.6 percent; and Josephine, 18.7 percent. These rates are higher than Oregon's statewide rate of 11.6 percent (Bureau of Census, 2000). Recently released guidelines for determining eligibility for assistance established the income limit for a family of four to be \$17,050 in 2000.

3.13.2.4 Revenue Sharing

Federal lands are not subject to state or local property taxes. In recognition of the state and county services that are provided (e.g., roads, emergency services, and law enforcement) Congress passed legislation in 1976 to provide Payments in Lieu of Taxes to all states and counties where public lands are located. The Bureau of Land Management is currently charged with making these payments on behalf of itself and other federal agencies. Revenue is distributed using a complex formula based on acres of federal land, population, and the total of the previous years' revenue sharing from on resource use collections (timber, range, mining, etc).

Oregon counties also receive payments based on timber harvested from revested O&C railroad lands. Coos and Douglas counties also receive payments based on timber harvested from revested Coos Bay Wagon Road (CBWR) lands. Since 1991,

payments have been based on historic payments instead of timber receipts. Congress has passed several laws establishing the formula and length of time for these "safety-net payments." The most recent law, the "Secure Rural Schools and Self Determination Act," P.L. 106-393, establishes payments based on the average of the three highest payments to each county between 1986 and 1999 and guarantees payments through Fiscal Year 2006. The payments are also scheduled to increase based on the consumer price index. The legislation applies to revenue sharing by both the BLM and Forest Service.

3.13.3 Local Economic Activity Generated by Public Land Resources

3.13.3.1 Introduction

The Bureau of Land Management and other federal land management agencies often make commodities available for use by the private sector. For example, the BLM sells timber to private firms, issues permits for special forest products collections, and issues permits for commercial recreation uses. Opportunities also exist for exploration and development of locatable and leasable minerals. Mineral materials are made available for sale and to state and regional governments for public uses without charge.

3.13.3.2 Lumber and Wood Products

Three sales have occurred in the area since 1990. Two were sold to a firm in Riddle, Oregon and the third to a firm in Grants Pass, Oregon. Total volume in the three sales was 20,668 thousand board feet (MBF). The southern Oregon region of Coos, Curry, Douglas, and Josephine Counties, is a productive timber region. Timber harvest in 1990 for the four county region totaled 1,593,069 MBF from all ownerships. Harvest has steadily declined since 1990, with 1999 totaling 708,068 MBF, a decrease of more than 50 percent in less than a decade. The majority of the decrease can be attributed to decreases in BLM and Forest Service harvests. Harvest in 1999 from BLM lands was just 20 percent of harvest in 1990. The reduction in Forest Service was even greater, just 11 percent of the 1990 harvest.

3.13.3.3 Special Forest Products

Data are not available for the economic impacts of special forest products in this area, but they are certainly far smaller than that of timber. The planning area is very remote and rugged, making it less attractive to potential harvesters than areas closer to communities or major transportation links, such as I-5. Beargrass, cedar boughs and other floral greenery are the primary products in this planning area. There does not appear to be a major potential for mushrooms or other products.

3.13.3.4 Minerals

The commercial mineral potential appears to be limited in this area. There are a few individuals and small companies in the planning area which extract some gold from streams in the area, but the income and economic impacts to the local economy are considered to be nominal. See the cultural section below for discussion of historical mining in the area. Most mining is casual use.

3.13.3.5 Recreation

By far the largest economic effect from recreation activities comes from visitors using the Rogue River for boating and fishing. Over 25,000 visitors a year use the Wild and Scenic Section of the River, generating an estimated income of approximately \$13 million (Economic Strategies 1998). This level of recreation use has direct impacts on the nearby communities of Galice, Agness, Grants Pass and Gold Beach which serve as embarkation and take-out points for float trips. In addition, outfitters, guides and associated business in Merlin, Grants Pass and other communities are greatly benefitted from this activity. Visitor use levels during the summer are regulated by the BLM and the US Forest Service and they appear to be stable for the near future (Austermuhle and Wicks 2000).

3.14 Minority and Low Income Populations (Environmental Justice)

There are no minority communities or low income communities within or nearby the planning area.

The Glendale Resource Area recognizes the concerns for environmental effects, including human health, economic and social effects, of its actions, including their effects on minority communities and low-income communities, as required by the National Environmental Policy Act (NEPA).

3.15 Cultural Resources

Much of the following description was taken from the Cultural Resource Survey and Historic Overview of the Kelsey Whisky project area - lands north of the Rogue River, by John Jones.

Archaeological evidence for the human habitation of southwest Oregon dates back at least 11,500 years. The earliest evidence is limited to scattered finds of distinctive dart and spear points, called Clovis points. These points are markers for the Paleo-Indian Culture, a specialized hunting adaptation focused on large Pleistocene mammals. Evidence for the Early Archaic adaptations to changing post-Pleistocene climates between 10,000 and about 7,000 years ago, is very scanty, but large broad stemmed points and broad-based pentagonal points of locally distinctive form are characteristic time markers for this period (Aikens 1993:227).

By about 7000 years ago, several sites located along the Rogue River and its primary tributaries document a long period of relative cultural stability. Evidence from the Marial site (35AR11-73), as well as several other sites similarly situated on terraces along the Rogue River, indicate that a broad based hunting and gathering foraging pattern was characteristic across southwest Oregon for several thousand years. Although stylistic markers document changing cultural patterns over time, between about 8,500 years and up until at least 3,000 years ago, a similar subsistence pattern is characteristic across the area (Connolly 1994, 1995; Winthrop 1993).

Between about 7,000 and 3,000 years ago, during the Middle Archaic period, human inhabitants of the Rogue River environs area initially lived in small, mobile groups and hunted and gathered within defined territories (Winthrop 1993). Seasonal base camps were occupied along the main stem of the Rogue River. Reliance on hunting, especially deer, and on collecting a wide variety of plant foods are evident in archaeological assemblages. At this time, fishing was a component of the subsistence pattern but did not have the heavy emphasis that

developed in the late Middle Archaic Period and that became a primary focus of the Late Archaic adaptations after about 2,000 years ago (Connolly 1994, 1995; Winthrop 1993).

Around 3,000 years ago, a gradual shift occurs in the adaptive patterns of the inhabitants of southwest Oregon. The mobile, wide spectrum resource gathering, foraging pattern characteristic throughout Middle Archaic times is replaced by a more sedentary, collector strategy with a heavy emphasis on riverine and streamside resources.

By 2000 years ago, during Late Archaic times, the collector pattern is well established at several sites located along the main stem of the Rogue River. Streamside adaptations are established with an emphasis on taking anadromous fish such as salmon and steelhead, collecting and processing acorns from adjacent oak woodlands, collecting seeds such as tarweed from grasslands on the valley floors, and camas bulbs from the numerous swampy lands and valleys. Pithouse villages are established on streamside terraces at important fishing sites along the Rogue and Applegate rivers. Plant food processing tools such as mortars, metates, and pestles indicate the significance of plant foods resources while and scrapers, projectiles, and a variety of flaked stone tools show a continued emphasis on hunting numerous upland animal species. This period heralds the introduction of the bow and arrow, and the possible invasion of Athabascan speakers into the area (Connolly 1995). Occupation at these sites intensifies over time and stable villages with established cemeteries are found by about 1,500 years ago. This pattern persists and is characteristic of the ethnographic lifeways documented for the many linguistically diverse Takelma and Athabascans groups living along the Rogue River and its tributaries at the time of historic contact.

The project area includes portions of the territories of several different ethnographic groups. The Penutian speaking Lowland Takelma were generally centered along the Rogue river east of Grave Creek, but provided a placename that probably corresponds to Rainie Falls, "a portage for canoes and big waterfall way down Rogue River." Various Athabascan groups were centered along the river and its tributaries to the west. The wild portion of the Rogue River corridor was the territory of the Shasta Costa Athabascans while the Tal-tuc-tun-te-de were centered on Galice Creek (Atwood and Gray 1996:56-57). The boundaries of these groups overlap in the project vicinity. Portions of this area

could have been used for seasonal hunting, gathering, and fishing by both Athabascan and Takelma.

The diversity of language signals very distinct ancestries; yet, the groups occupying southwestern Oregon at the time of historic contact were culturally very similar and practiced similar lifeways (Pullen 1996). The people were all hunter-fisher-gatherers who made their living from a wide variety of resources to be found in the narrow canyons and small interior valleys they occupied. The main villages, central settlements of a few houses each that were occupied for the greater part of the year, generally were located on alluvial terraces of the major streams. Here, they built substantial semi-subterranean plank houses. The villages are situated relative to good fishing sites, at the confluence of streams, and where acorns and other storable plant resources were abundant. Surrounding uplands were used to gather a wide variety of plant foods, to hunt deer and elk, and to procure materials for making baskets and tools (Gray 1987; Pullen 1996).

Major sources of food were salmon, trout, suckers, crayfish, and freshwater mussels from the streams; deer, elk, bear, squirrels, rabbits, acorns, and pine nuts from the savannas and forests, and camas bulbs, sunflower seeds, and tarweed seeds from the grasslands (Aikens 1993: 223-224). In the spring, people left their villages to gather camas bulbs and to fish. Although salmon and steelhead were primary capture species, as they could be collected in large numbers during seasonal spawning runs, numerous trout species and other fish were taken (Pullen 1996).

A wide variety of plant foods became available throughout the summer and seeds were dried and stored for winter use. Acorns from black and white oaks and tanoak were an important food source (Pullen 1996IV-11). Salmon harvest was especially important in summer and early fall. Weirs were built across streams to channel the fish through narrow openings where they could be speared or netted, and winter villages were sited near rapids and other good fishing places. Hunting deer and elk and fishing for a wide variety of species were important year round but especially during fall and winter (Aikens 1993; Pullen 1996; Atwood and Gray 1996).

The wild stretch of the river between Marial and Grave Creek did not have large terrace features located above the flood zone and would not have been suitable for winter village sites. Numerous small meadows, terraces, and river bars were

strung along the river between the mouth of Mule Creek and Horseshoe Bend. In fact, this stretch of the river was known as “the Meadows” because of the several small grassy meadows located about 1,500 to 2,000 feet above the river on the north side (Walsh 1972:11). These areas served as a place of retreat during the Rogue River Indian Wars.

The gravel bars along the river below Horseshoe Bend, and those once located near the mouth of Whisky Creek were the locus of gold bearing gravels and were largely obliterated during the early placer mining era. Between Meadow Creek and Whisky Creek, the Dothan geologic formation is devoid of valuable minerals (Parry 1999a, 1999b), and this stretch preserves some evidence of the native uses of the river. Archaeological evidence suggests important fishing sites were located along the middle portion of the rugged canyon (Neilsen 1978a, 178b, 178c; Gray 1994).

Upland areas would have been used for hunting and occasional plant gathering (Winthrop 1995). Trails originally used by native peoples were later developed for packers and miners, suggesting that the project area was well traveled by native peoples. Stream bottoms support thick riparian vegetation, and although often suitable for hunting stations and for fishing sites, were not travel corridors strung along the river and did not serve as seasonal camps. Instead, trails were located along ridge tops, benches, and other open areas and generally linked the Rogue River to settlements located north on Cow Creek as well as to those along the river above and below the project area. Small meadows located near springs in the central upland area would have been used as short-term camps.

Few prehistoric archaeological sites have been recorded in the steep, dissected terrain north of the Rogue River. Both deer and elk were once very numerous in these lands (Rivers 1979), and this area probably was used for seasonal hunting and plant gathering. Trails later used by historic packers and miners followed earlier ones developed by the native inhabitants. As evident during the Rogue River Indian Wars, local Native Americans had very specific knowledge of this back country. They used it to military advantage in hiding out from the militia and in staging attacks on nearby settlements (Walsh 1972). The small meadows edging the river and along major streams, as well as those centered around springs such as Copsey, Meadow, and Cool were much larger than today. The landscape was much more open during ethnographic and early historic times as the natives used fire to maintain

the meadows and control brush (Pullen 1996). Today, many of the small meadows are either covered with brush fields or have been invaded by surrounding forest (Dave Reed, personal communication, 2000).

Contact Period

Although the wild portion of the Rogue River figures importantly in the history of the Kelsey / Whisky project area, Indian camps from this period and battle sites are located along the river corridor outside the survey area. The militia headquarters at Little Meadows and Fort Lamerick at Big Meadows are located within the survey area, but physical evidence of these historic uses have not been located.

Gold Mining

No large placer deposits are located within the Kelsey/Whisky survey area. The slopes of the drainages are simply too steep to accumulate gravels. During the 1880s, when hydraulic mining was at its peak, ditches were built that directed water from tributary streams to the placer operations in the bottom of the canyon. One ditch flume was built in 1890 along the slopes of Whisky Creek and ran for one-half mile between creek source and Whisky Creek Cabin (Atwood and Gray 1996: 101). It provided domestic water for the cabin and power for hydraulic mining on the river below. A portion of this ditch may have crossed BLM lands in the survey area. Other ditches may be located along drainages above major placer workings and would be expected to be within about one-half mile of the river. There are no recorded uses of the survey area by Chinese miners. Their activities appear to have been restricted to the placer deposits located along the river.

Although the major historic lode producing mines were patented and now are located on private lands, numerous mines in the Mt. Reuben District are located on BLM lands and are shown on the USGS 7.5' Mt Reuben quadrangle.

Settlement

The Rogue River Ranch is located outside the survey area. Two graves of decedents of the Billings and Fry families are located in the survey area in the vicinity of Big Meadows. Big Meadows was used for grazing by the Billings and Frys and evidence of fencing, corrals, and watering troughs may be found on adjacent BLM lands.

Transportation and Communication

Numerous early trails are shown on a variety of maps including GLO survey maps, revestment maps, Metsker's Maps, and on USGS 15' and 7.5' quadrangles. Apart from those developed specifically for hiking along the Rogue, most have been converted to dirt roads or jeep trails. There is, however, no perfect correspondence between the original trail templates and the roads that were developed later. Map plots are imprecise on early GLO maps, and many are likely to be covered with brush rendering them invisible today (Dave Reed, personal communication, 2000).

Civilian Conservation Corps

In the rugged lands along the Rogue River canyon, there were few roads or bridges, and the CCC spent considerable energy in constructing roads across this remote area. The road today known as the Grave Creek to Marial National Back Country Byway (a.k.a. Mount Reuben and Marial Roads) was constructed by the CCC, initially as a truck road.

Summary

The BLM contracted for a historical overview of the Kelsey Whisky area as well as a 15% sample survey of the total project area. The archeological survey of 6324 acres was completed during the summer of 2000. Both pre-historic and historic cultural resources were recorded during the course of the survey.

The prehistoric sites are limited in number but the variety of site types indicate that this area has long been known and used as a source of food and shelter. The majority of historic sites are related to historic mining activity. Adits, structure flats and remains, prospect pits, ditches, and a myriad of associated artifacts made up the bulk of the archaeological remains found in the project area. The next largest historic site type were historic trails. These were found in various stages of preservation and were used by miners and homesteaders throughout the project area including in and surrounding the East Fork Whisky Creek subwatershed. These sites include historic trails, mine adits, mine tailings and remnants of structures. Also in relation to transportation, the Mount Reuben and Marial Roads are representative of an interesting time in history when the CCC and other Federal programs operated in the area.

Proposed Area of Critical Environmental Concern

The East Fork Whisky Creek area was relatively undisturbed prior to the 1850's. Historical information indicated Native Americans had a few trails into the Rogue River Canyon most of which were on ridge tops. In the 1850's, gold was discovered and the miners improved many of the trails into pack routes. Placer and load exploration occurred through the 1930's. There are several exploration pits and adits within the ACEC. For the most part, this early exploration has been healed over by vegetation. During the early 1930's the first road into the area was constructed by the CCC's. This road forms the eastern and northeastern boundary of the RNA. Several small harvest units appeared in the 1960's and then about once a decade up to present. These were seeded or planted back to conifer and are early/mid seral stages at present. The youngest of the harvest units was planted in 1994. The total acreage of harvest was 67 acres. All of the harvested acres are located near the eastern boundary road. The core of the subwatershed is intact and undisturbed except for early mining exploration.

3.16 Native American Religious Concerns

Native American inhabitation of the planning area is known to have begun approximately 8,500 years ago. Confirmation of early Native American use of the area comes to us via the archaeological deposits found at Marial, a prehistoric and historic settlement located near the mouth of Mule Creek at the western end of the planning area.

The Shasta Costa band of Tututni Native Americans occupied the area along the Rogue River watershed from Agness to Grave Creek, and south along the Illinois River watershed. They were the predominate users within the EIS planning area. Directly east, and slightly overlapping in territory around Grave Creek, were the Lowland Takelma. To the north of the planning area lived the Cow Creek band of Umpqua Native Americans.

Historic records of the area began with the journals of trappers and the botanist David Douglas, who came to this region in the 1820's. Pioneer settlement began in the 1850's, aided by the discovery of gold on Galice Creek. The arrival of

miners and farmers engendered a series of conflicts with the local Native Americans, leading to the period known as the Rogue Indian Wars of 1853 to 1856. By 1856 most of the surviving Native Americans in the planning area were either forcibly removed to the Grande Ronde or the Siletz reservations in northern Oregon, or were killed by “licensed” Indian hunters. By the end of this period all members of the original Native American inhabitants had been extirpated from the area.

Unlike the designated areas for the Cow Creek band of Umpqua Native Americans to the north, there are no areas within the Kelsey Whisky EIS Planning Area that are known to be currently important as Native American religious sites or are in use for traditional purposes at this time. However, we will continue to coordinate with Native Tribes during this process.

3.17 Areas of Critical Environmental Concern and Wild and Scenic Rivers

Areas of Critical Environmental Concern

There are currently no Areas of Critical Environmental Concern (ACEC) or Research Natural Areas (RNA) in the planning area. The Bobby Creek RNA is adjacent to the planning area, near the upper portion of Kelsey Creek.

The area proposed for the East Fork Whisky Creek subwatershed area contains a plant group that would fill a cell of the Oregon Natural Heritage Plan. The large size of the East Fork Whisky Creek area represents an ecologically functional Douglas fir/Tan oak system that has very little human-caused disturbance.

Wild and Scenic Rivers

The planning area is bisected by the Congressionally-designated Rogue Wild and Scenic River, managed under the Wild Section Management Plan and considered outside the scope of this planning effort. The designated area generally occupies 1/4 mile on either side of the river. Management actions for BLM-administered land beyond that corridor are affected by restrictions to protect the view from within the corridor.

Several streams within the planning area were reviewed for eligibility and suitability for possible inclusion within the Wild and Scenic River Management System under the Medford District Resource Management Plan. Management actions on BLM-administered land along the following segments, generally defined as 1/4 mile on either side of the stream, are restricted to protect the outstandingly remarkable values identified in the RMP: Big Windy Creek, East Fork Windy Creek, Dulog Creek, and Howard Creek. All of these segments are located south of the Rogue River, within the area managed as a Late-Successional Reserve, with all effected lands administered by the BLM.

3.18 Wilderness

The planning area includes a portion of the Wild Rogue Wilderness Area, north of the Rogue River, established under the Endangered American Wilderness Act of 1978. Interpretation of that law has resulted in all lands within the Wild Rogue Wilderness, including the Oregon & California Lands generally administered by the Bureau of Land Management, being administered by the Siskiyou National Forest. Management of this wilderness area is covered by the Siskiyou National Forest management plan. The boundary of the wilderness was established as part of the Congressional Act but has never been established through on-the-ground surveys, resulting in potential conflicts with wilderness management guidelines when planning management actions in areas close to the wilderness boundary.

3.19 Air quality

Air quality concerns are regulated by the 1963 National Clean Air Act as amended in 1966, 1970, 1977 and 1990. The 1977 amendment provided for the prevention of significant deterioration (PSD) program. The intent of the PSD program is to limit air degradation in those areas of the country where the air quality is much better than standards. Under this provision, certain national parks and wilderness areas were designated as Class I Airsheds whereas the remainder of the country was designated Class II. Although the PSD permit provisions of the Clean Air Act apply only to major stationary sources of air pollution (motor vehicles are mobile sources), the Environmental Protection Agency (EPA) used them to determine the degree of potential impacts of

other sources on air quality. Forest management activities in the analysis area do not require a PSD permit.

The Oregon Smoke Management Plan, a part of the required state implementation plan (SIP), identifies strategies for minimizing the impacts of smoke from prescribed burning on the smoke sensitive areas within western Oregon. Particulate matter with a nominal size of 10 microns or less (PM 10) is the specific pollutant addressed in the SIP.

Three designated air quality areas (defined by the Oregon Department of Environmental Quality) may be affected by management activities within the planning area. The Kalmiopsis Wilderness, located approximately 21 miles to the southwest, is designated as a Class I smoke-sensitive area. Regulations prohibit prescribed burns on days that allow smoke to flow into the Kalmiopsis between July 4 and Labor Day (beginning of September). The Wild Rogue Wilderness Area is a Class II smoke-sensitive area. The Grants Pass non-attainment area is 30 miles southeast. The Medford/Ashland non-attainment area is 56 miles east-southeast of the watershed. Both non-attainment areas are far enough away that they do not impact these areas. The non-attainment status of these communities is not attributable primarily to prescribed burning. Major sources of particulate matter within the Rogue Valley is smoke from woodstoves, dust, and industrial sources. The contribution to the non-attainment status of particulate matter from prescribed fire has historically been less than 4 percent of the annual total.

Air quality and visibility monitoring sites do not exist in the immediate vicinity where treatments would occur, therefore, existing air quality information is not available. Generally speaking, air quality is excellent since there are no stationary sources of particulate matter production and the planning area is remotely located.

Smoke sensitive receptors adjacent to the planning area include Rogue River Ranch, Rogue River Corridor, Rand Galice, and the Kalmiopsis and Rogue Wilderness areas. Times of high public use occur primarily in late spring through early fall. Smoke intrusions may occur (but not likely) as far north as the Cow Creek drainage. In this case, the towns of Reuben and Glendale may have the potential of being impacted. The prevailing winds between late spring and fall are up canyon and uphill (west to southwest).

When burning under spring-like conditions, larger fuels are not consumed due to higher fuel moisture. Fuel consumption is lower, creating fewer emissions, with smoke dispersal easier to achieve under the general meteorological conditions. Advanced ignition techniques, such as aerial firing, further reduce total emissions by accelerating the ignition period and reducing the total combustion process due to the reduction in the smoldering stage. Hand piling of slash has allowed selective burning of woody debris during late fall and winter but only under weather conditions that allow optimal smoke dispersion. These mitigation measures can be used to bring emissions below de minimis levels as required in the Clean Air Act.

The National Ambient Air Quality Standards (NAAQS), set by the authority of the Clean Air Act (CAA), cover six "criteria" airborne pollutants: lead, sulfur dioxide, carbon monoxide, nitrogen oxides, ozone and particulate matter. The lead and sulfur content of forest fuels is negligible, so these two forms of air pollution are not a consideration in prescribed burning.]ch4

Prescribed burning does emit some carbon monoxide (CO), from 20 to 500 lb. per ton of fuel consumed. This would be a concern if there were other persistent large CO sources in the immediate vicinity. CO is such a reactive pollutant, however, that its impact is quickly dissipated by oxidation to carbon dioxide where emissions are moderate and irregular and there is no atmospheric confinement.

Burning also emits moderate amounts of volatile organic compounds (VOC) and minor amounts of nitrogen oxides (NOx). These are precursors to formation of ground level ozone. Here, fire-related emissions may be seen as important only when other persistent and much larger pollution sources already cause substantial non-attainment of NAAQS.

Particulate matter smaller than 10 micrometers (PM 10) is a term used to describe airborne solid and liquid particles. Because of its small size, PM 10 readily lodges in the lungs, thus increasing levels of respiratory infections, cardiac disease, bronchitis, asthma, pneumonia, and emphysema.

The fate of PM emissions from prescribed burning is twofold. Most (usually more than 60%) of the emissions are "lifted" by convection into the atmosphere where they are dissipated by horizontal and downward dispersion. The "unlifted" balance of the emissions (less than 40%) remain in intermittent contact with the ground. This impact is dissipated

by dispersion, surface wind turbulence and particle deposition on vegetation and the ground. The risk of impact on the human environment differs between the two portions of smoke plume.

Ground Level Smoke

Unlike smoke aloft, the potential for ground level smoke to create a nuisance is immediate. This part of the smoke plume does not have enough heat to rise into the atmosphere. It stays in intermittent contact with the human environment and turbulent surface winds move it erratically. Also in comparison to smoke aloft, human exposure is more intense, relatively brief (a few hours) and limited to a smaller area. Smoke aloft is already dispersed before it returns to the human environment while ground level smoke must dissipate within that environment. Dissipation of ground level smoke is accomplished through dispersion and deposition of smoke particles on vegetation, soil and other objects.

The pollutant most associated with the Medford District's resource management activities is PM 10 found in smoke produced by prescribed fire. Monitoring in southwest Oregon consists of nephelometers (instrument designed to measure changes in visibility) in Grants Pass, Provolt, Illinois Valley, Ruch and eventually in Shady Cove. One medium volume sampler is collocated with the nephelometer at the Provolt site. The medium volume sampler measures the amount of PM 10 and smaller at ground level.

3.20 Non-native and invasive species

Noxious Weeds

Noxious weeds are plants that originated in another area, typically Asia or Europe. They can displace native plant species and biodiversity. In their ecosystem of origin, these weeds are not problems because they evolved with natural controls such as insect predators, fungi, and other competing plants, but these control agents are not present in North American ecosystems. Noxious weeds may affect the structure of ecosystems by altering the composition of plant communities. They can do this by producing abundant seed, having fast growth rates, and exploiting the entire soil profile for water and nutrients. The soil can be damaged by noxious weed populations by lowering the amounts of

organic matter and available nitrogen. Some weeds can even cause the soil temperature changes to be more extreme than normal.

A roadside inventory for noxious weeds in the Medford District was conducted from 1996 to 1998. In addition, noxious weeds were reported during timber sale unit surveys for special status plants. Eight different species of noxious weeds are known to be growing in the planning area: Canada thistle, meadow knapweed, scotch broom, Spanish broom, purple loosestrife, yellow star thistle, Klamath weed and tansy ragwort. Since weeds can easily spread, populations probably exist beyond those currently on the inventory. Weeds are spread in many ways, including road building, logging, recreation activities, waterways, animals, weed-contaminated hay and wind. Noxious weeds prefer disturbed sites where they can out-compete the native community.

Yellow star thistle is found by the Grave Creek boat landing and the Rogue River trail. It was introduced to North America from the Mediterranean region of Europe. The thistles are sharp and walking through them can be painful. They also cause a nervous disorder in horses that leads to death.

Purple loosestrife was introduced into North America from Europe in the early 1800s as horticultural stock and as a contaminant of ship ballast. It can spread in wet environments rapidly. Rogue River canyon has been inventoried with substantial populations found.

Klamath weed or St. John's wort is native to North Africa, Europe and parts of Asia. The major reasons for the plant's introduction into other countries was cultivation for medical purposes or ornamental value. Today, it is so widespread in the watershed and surrounding areas that it is considered established and is not inventoried.

There are 28 inventoried sites of Canada thistle in the watershed, all along roadsides. Canada thistle is a native to southeast Europe and Asia. It was introduced to Canada by early settlers, probably as a contaminant of crop seeds and now infests every county of Oregon.

Meadow knapweed is native to Europe and is now common from British Columbia to northern California. There are three known sites of meadow knapweed, all along roadsides.

Scotch broom is native to Europe and is currently widespread in Oregon, where it was originally introduced as an ornamental. There are five known sites along roads in the watershed.

Spanish broom has been found at 16 sites in the watershed, all along roads, except two found along the Rogue River. The sites on the Rogue River have been treated since 1997.

Tansy ragwort is a native to Europe. It was first reported around North American seaports in the early 1900s, indicating it was probably introduced as a contaminant of soil used as ships' ballast. The plant is toxic to cattle and horses. There are 34 inventoried sites along roads in the watershed. The biological control, cinibar moth, has been released in areas outside of the watershed.

Proposed Area of Critical Environmental Concern

Presently there are noxious weeds found on several roadsides bordering the East Fork Whisky Creek subwatershed including Yellow starthistle, tansy ragwort, St. John's wort, knapweed, and scotchbroom. Currently there are no known populations of noxious weeds within the subwatershed. Plant inventories of the area should be conducted as soon as possible to evaluate the presence of any noxious weeds.

Animals

Several non-native animal species have become established in the watershed. These species sometimes directly compete with native animals for food, water, cover and shelter. Bullfrogs Presently there are noxious weeds found on several roadsides bordering the ACEC. Yellow starthistle, tansy ragwort, St. John's wort, knapweed, and scotchbroom are species known to exist along roads bordering the area. Presently surveys are being conducted to map all populations of noxious weed that occur along boundaries or along access roads. Once mapping has been completed, a management plan will be developed on a species by species basis. Currently there are no known populations of noxious weeds within the ACEC. Plant inventories of the area should be conducted as soon as possible to evaluate the presence of any noxious weeds. compete and consume native frogs and young western pond turtles. Opossums compete with native striped skunks and raccoons. Brown-headed cowbirds and starlings parasitize native bird nests. Wild turkeys have been introduced into the watershed by ODFW and are

now thought to be successfully established there. They are known to occur in the Bald Ridge area and may compete with native wildlife species for acorns.

3.21 Hazardous or solid wastes

There are no known hazardous material sites in the planning area. When hazardous substances are discovered abandoned on public lands, they are identified, investigated, and arrangements for removal and disposal are made in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), Oregon Department of Environmental Quality (DE), and the Department of Transportation (DOT) regulations.

Emergency response procedures are described in the District Hazardous Materials Non-Facility Emergency Response Plan. The response actions would be consistent with the above regulations, and the nature of the emergency.

3.22 Rogue River Management and Wild Rogue Wilderness Area Management

The management practices for the Wild and Scenic section of the Rogue River and for the Wild Rogue Wilderness Area are adequately covered by management plans for those areas. The corridor along the Rogue River in the planning area is managed by the BLM; the Wild Rogue Wilderness Area is managed by the Siskiyou National Forest. While the management actions being proposed in this Draft EIS are located close to these two areas, they are fully consistent with those management plans and would not affect the management of the areas or the resources involved. Altering the management direction for either the Rogue River or the Wild Rogue Wilderness Area is outside the scope of this Draft EIS as discussed in the Notice of Intent and the purpose and need for the action.

Table 3-1. Wild Rogue North Watershed Analysis - Summary of Environmental Features.

GEOGRAPHIC INFLUENCE	TYPE	SPECIFIC TO THE WILD ROGUE NORTH WATERSHED
Morphology	Watershed size	<ul style="list-style-type: none"> • 61,693 acres Wild Rogue North watershed • 57,718 acres BLM land (93 percent) • 105,000 acres (Entire 5th field watershed)
	Elevation range	• 690 - 4,300 ft - mouth of Grave Creek to near Mount Bolivar
	Transient Snow Zone > 2500 ft	• 28,900 acres
	Drainage pattern	• Dendritic
	Orientation	• North to South
	Drainage density	• 6.3 miles/mile ²
	Total stream miles	• 611 miles
	Total fish stream miles	• 59 miles
Meteorology	Annual precipitation	• 40-120 inches east to west
	Type	• Rain and snow
	Timing	• 80% occurring October thru May
	Temperature range	• 0-100 degrees F
Surface Water	Max peak flow, near Grants Pass	• 195 ft ³ /s (Recorded on Jan 30, 1961)
	Minimum flow, near Agness	• 608 ft ³ /s (Recorded on July 9/10, 1968)
	Max peak flow, near Grants Pass	• 152,000 ft ³ /s (Recorded on Dec. 23, 1964)
	Daily flow, near Agness	• 290,000 ft ³ /s (Recorded on Dec. 23, 1964)
	Reservoirs	<ul style="list-style-type: none"> • Several small pump chances & heliponds in Kelsey and Mule Creeks. • Bobby pond - only constructed helipond. • No large bodies of water within watershed
	Water quality limited stream miles	• 37.4 miles (303d listed for temperature above 64 degrees)
Groundwater	Regional Aquifers	• None
	Springs	• Numerous springs (not mapped)
Geology	Geographic Province	• Klamath Mountains
	Formation	• <u>Rogue</u> - metavolcanic rock composed of volcanic rock

Table 3-1. Wild Rogue North Watershed Analysis - Summary of Environmental Features.

GEOGRAPHIC INFLUENCE	TYPE	SPECIFIC TO THE WILD ROGUE NORTH WATERSHED
Geology cont.		including altered, greenish lava flows and rocks comprised of lava cinders and fragments. • <u>Dothan</u> -metasedimentary rock composed of thick sandstone layers alternating with other sedimentary rock and dense pillow lava flows. Sand, silt and mudstone contact prone to landslides.
	Soils	Shallow depth, many different series and complexes. Basin wide, generally a low water holding capacity and relatively infertile. Nutrient quality, depth and fertility increase moving from east to west across the watershed.
Human Influence	Roads	• 237 miles
	Roads w/i 1 tree length of stream	• 84.0 miles (14% of total stream miles)
	Roads w/i 1 tree length of fish bearing streams	• 2.1 miles (3% of total stream miles)
	Road density	• 2.4 miles/mile (watershed average)
	Agriculture	• Historical use on private lands.
	Communications sites	• Nine Mile Repeater
	Communities	• No major communities • Several private residences scattered throughout the watershed.
	Improvements	• Calvert Airstrip
	Mining	• Current placer claim on East Fork Whisky Creek. • Numerous historical claims along the Rogue River and lower reaches of Whisky and Mule Creeks. • Several hard rock mines.
	Recreation	• Rogue National Wild & Scenic River • Wild Rogue Wilderness • Grave Creek to Marial Back Country Byway • Tucker Flat Campground • Various undeveloped campsites and trails
	Timber production	9,253 acres (16%) of BLM land within watershed available for timber harvest. Age distribution on GFMA lands includes: 0-40 years: 28 % 80-200 years: 33 %

Table 3-1. Wild Rogue North Watershed Analysis - Summary of Environmental Features.

GEOGRAPHIC INFLUENCE	TYPE	SPECIFIC TO THE WILD ROGUE NORTH WATERSHED
		40-80 years: 17 % 200+ years: 22 %
Human Influence cont.	Progeny Test Sites	• Three test sites: near Quail Creek, Mule Creek and Jacob Weil Spring
	Utility corridors	• Fiber optics line along Whisky Creek Road
Biological	Vegetation	• Primarily mixed conifer and hardwood. • Vegetative communities differ by slope, aspect, elevation and soils.
	Threatened, or Endangered Species	• Northern spotted owl (13 active sites) • Marbled murrelet (none found) • Coho salmon
	Survey and Manage species	• Del Norte salamander • Mollusks • Red tree voles • Fungi • Bryophytes • Lichens
	Special Status Plants	• Numerous species and locations

Table 3-2. Plant series within the BLM portion of the Kelsey Whisky Planning Area.

Plant Series	Acres	Percent of Watershed (BLM)
Tanoak	76,000	76
Douglas-fir	21,000	21
White Fir	1,000	1
Western Hemlock	400	<1
Jeffrey pine	30	<1
Ponderosa pine	50	<1
Oregon White Oak	100	<1
Shrubfields (Canyon Live Oak)	1,000	1
TOTAL	~ 99,580	100

Table 3-3. Seral stage distribution on BLM land by land use allocation, north of Rogue River.

Stand Age	Acres	Seral Stage	Acres
		Non-Forest/ Unclassified	766
0-10 years	2,159	Early Seral	2,159
11-20 years	3,744	Mid-Seral	11,524
21-30 years	2,949		
31-40 years	4,831		
41-50 years	869		
51-60 years	192	Late Seral	2,804
61-70 years	726		
71-80 years	1,017		
81-150 years	40,256	Late-Successional early mature	76,808
151-200 years	21,339	late mature	
200 years+	15,213	old growth	
	(52,216	Late-Successional / suitable owl habitat)	(52,216)
80 years+	5,399	Modified Stand modified (partial cut stands)	5,399
TOTAL	99,460		99,460

Table 3-4. Streams and estimated distance of fish presence for coho salmon and steelhead, within the Kelsey Whisky Planning Area.

Stream Name	Miles of Coho	Miles of Steelhead
Arrasta Fork Mule Creek	1.3	1.3
Big Windy Creek	1.5	5.3
East Fork Big Windy Creek	0.6	1.7
East Fork Whisky Creek	2.1	2.1
Howard Creek	4.6	3.1
Kelsey Creek	2.2	2.5
Mule Creek	11.5	11.5
Rogue River	20.0	20.0
West Fork Mule Creek	1.4	3.7
West Fork Whisky Creek	3.0	4.0
Whisky Creek	2.5	2.5
Anna Creek	----	1.4
Booze Creek	----	.5
Bronco Creek	----	.1
Bunker Creek	----	1.2
Ditch Creek	----	.3
East Fork Kelsey	----	3.7
Hewitt Creek	----	.5
Jenny Creek	----	.3
Little Windy Creek	----	.7
Long Gulch	----	.6
Meadow Creek	----	.9
Missouri Creek	----	1.2
Wildcat Creek	----	.2
Rum Creek	----	.5
Russian Creek	----	.3

Table 3-5. Paved Roads in the Kelsey Whisky Planning Area.

Road Name	Road Number	Miles	Remarks
Cow Creek Road	33-7-2	11.06	Mainline road - Through route
Cow Creek Road	30-6-32	0.29	Mainline road - Through route
Mt. Reuben Road	34-8-1	4.40	Back Country Byway - Surface protection
West Fork Cow Creek	32-8-1.1	3.9	Mainline road - Through route
Bobby Creek Access	32-8-9.2	6.65	Through route
Calvert air strip		0.32	Emergency use - Fire
Kelsey Mule	32-8-31	5.10	Through route
Marial	32-9-14.2	4.10	Back Country Byway
Dutch Henry	32-7-19.3	8.42	Through route

Table 3-6. Reciprocal Rights-of-Way in the Kelsey Whisky Planning Area.

Right of Way Number	Road Number	Location *	Right of Way Holder
870	31-9-35	T31S,R9W	Larry Brown Timber
605		T32S,R8W,sec30	Superior Lumber
605A		T32S,R8W,sec31,32	Roseburg Resources
700		T32S,R8W,sec31	Roseburg Resources
870	32-8-31,32-8-24	T32S,R8W	Larry Brown Timber
605		T32S,R9W,sec13-35	Superior Lumber
870	32-9-14.2	T32S,R9W	Larry Brown Timber
605		T32S,R10W,sec11-14,22-8,33-36	Superior Lumber
605		T33S,R8W,sec6-8,17-20,26-30	Superior Lumber
441		T33S,R9W,sec7	K&C Lumber
605		T33S,R9W,sec1-16,18,22-26,35,36	Larry Brown Timber
605		T33S,R10W,S1-3,10-12	Superior Lumber
870	34-8-1	T34S,R8W	Larry Brown Timber

* (T=township, R=range, sec=section, S=south, W=west)

Chapter 4 - Environmental Consequences

4.0 Introduction

This chapter describes the environmental consequences of implementing any of the alternatives described in Chapter 2, including the no action alternative. Chapter 4 focuses on potential impacts in relationship to the key issues, important resources, uses and management actions described in Chapter 3, the Affected Environment.

The analysis and description of the environmental consequences focus on issues identified through scoping (see Chapter 1), but also address impacts to other critical elements, as identified in BLM manual H-1790-1 and supplementary guidance. The analysis will focus on the key issues as described in Chapter One. Discussions from previous analysis are summarized and incorporated by reference from the Northwest Forest plan (April 1994), Medford District Proposed Resource Management Plan/Environmental Impact Statement (Oct 1994) and the more site specific Wild Rogue North Watershed Analysis (Ver 2.0 December 1999) and the Wild Rogue South Watershed Analysis (Ver. 1.0 March 2000).

Direct, indirect and cumulative impacts are addressed for each resource, use or management action. Cumulative impacts are the effects on the environment of each alternative when considered with the effects of past, present, and reasonably foreseeable future actions that might occur inside and outside the project area.

Table 2-1 presents a summary of the acreage changes between the alternatives; Maps 4,5, and 6 illustrate the spatial arrangements.

4.1 Analysis Assumptions and Guidelines

The following assumptions and guidelines were used to guide and direct the analysis of environmental consequences:

1. If selected, any of the alternatives would be implemented as described in Chapter 2, including the Management Common To All Alternatives.
2. The Bureau of Land Management would have sufficient funding and personnel to implement alternatives.

3. Current trends in management, including land use and fuels development, would continue in compliance with the Medford District Resource Management Plan (RMP) and the Northwest Forest Plan.
4. The selected action alternative would be implemented over approximately the next three to seven years.
5. The monitoring identified within the context of the alternatives would be funded and implemented.
6. The Aquatic Conservation Strategy, as described in the RMP, and the Best Management Practices in Appendix D of the RMP, would be common to all action alternatives.
7. The environmental consequences would be consistent with those described in the RMP and Final Environmental Impact Statement (RMP/EIS), unless specifically identified in this document.
8. Clearance surveys have not been completed for all Special Status and Survey and Manage species. Required surveys would be completed for these species before a Record of Decision were to be signed. Any locations within the project area would be protected according to established direction and protocols.
9. Fire behavior predictions were calculated using the BEHAVE program (Burgan and Rothermel 1984). Worst case weather conditions were used to model rate of spread and flame length. The model is primarily intended to describe a flame front advancing steadily in surface fuels within 6 feet of, and contiguous to, the ground. More details on the fuel models used can be found in Appendix 5.

4.2 Soils

For all action alternatives, impacts to soils are within the range of those previously analyzed in Effects on Soils (pgs 4-12 thru 4-16) in the Medford District Resource Management Plan Environmental Impact Statement (1994). Course wood requirements by plant association would be adequate to supply soil organics after harvest activities given the silvicultural prescriptions to ensure adequate post

harvest levels of coarse wood retention. All harvest units would be on stable ground as well as proposed road locations. Most harvest activity would occur on soils derived from metamorphic sandstone. Best management practices would be in place to ensure soil organics be retained and thus maintain long term soil productivity. An irreversible but negligible loss of soil resources through new road construction under alternative 1 would occur..

Soils are further addressed below, under section 4.3, as soil relationship to hydrologic impacts and function are virtually inseparable, and under section 4.9 which discusses the transportation system and road treatments.

4.3 Hydrology

4.3.1 Wetlands, Floodplains, and Riparian Zones

Wetland and riparian areas would be maintained or enhanced through all alternatives. The Aquatic Conservation Strategy of the Northwest Forest Plan would be fully implemented. Precommercial thinning (PCT) in riparian reserves would be used to accelerate the rate of growth of conifer species and to reduce fire hazard. Silvicultural activities would occur under all alternatives for forest health reasons. Burning of piles would also occur in riparian zones near roads to reduce ignition sources of slashed material. Prescriptions for PCT activities would require a 25 foot setback from stream channel.

Since the channels are hill-slope constrained and there is currently no flood plain development, there would be no effect on this element from any of the proposed alternatives. Under all alternatives the Aquatic Conservation Strategy of the Northwest Forest Plan would be implemented to ensure integrity of the streams and Rogue River.

Precommercial thinning (PCT) activities within the riparian management areas would not occur within 25 feet of the channel, thereby maintaining current shading and facilitating more rapid growth of large trees. Activities for PCT under this proposed action would be located on the upper slopes, and involve spacing and brushing near 1st and 2nd order streams with channel widths of 1 to 4 feet. These channels are currently well shaded and would continue to be so after the action were completed. Because of this, the water temperature and other water quality parameters would be maintained. It is also likely

that long-term large wood recruitment would be improved by PCT in these areas. Pine retention activities and thinning in Whisky Creek drainage would not impact water quality parameters since there would be adequate buffering of channels, protecting current shading and filtration.

There are no activities currently planned that would affect water sources for domestic use in the planning area. The BLM has no ground water injection facilities within the planning area.

4.3.1.1 Transient Snow Zone

Analysis of open area for determination of rain on snow events was conducted for each alternative and then compared between alternatives. Open area calculations were derived from non-forested areas, stands less than 30 years old and calculation of estimated open area as a result of commercial thin activity in proposed stands.

The existing condition (alternative 3) indicated a 91 percent covered area at the Wild Rogue North planning area level. Alternative 4 would remain essentially the same and for all practical purposes all the other alternatives would reduce the covered area to 90 percent.

The existing conditions at the sixth-field subwatershed level indicated that all subwatersheds within the planning area would remain above 84 percent covered. The area of Whisky Creek is about 15,083 acres, Bunker Creek 16,352 acres, Meadow Creek 11,346 acres and Kelsey Creek 11,545 acres.

The existing conditions at the seventh-field subwatershed level indicated that all of these subwatersheds within the Planning area would remain above 80 percent.

Surveys by the Oregon Department of Fish and Wildlife (ODFW) and BLM revealed hill slope constrained channels with a high gradient (i.e., greater than 10 percent). The adjacent slopes are stable and vegetated and the channels are moderately stable at the present time. Given that open space in the past was much greater than current conditions due to fires (see watershed analysis range of natural variability) the channels are likely of adequate width and depth to handle flows without any undue channel changes.

4.3.2 Water Quality

Water quality would be protected through adherence to the Aquatic Conservation Strategy as described in the Medford District Resource Management Plan and in the project design features described in Chapter 2. Consistency with this strategy has been analyzed and can be found in Appendix 11 (cf 4.8.4 - Fisheries).

Road maintenance, road building and decommissioning of roads would likely produce above background levels of sediment during the first few rains of the fall season. This would be true for all action alternatives. Long term benefits would be expected from decommissioning roads under all alternatives. The natural hydrologic conditions would be improved within the watershed through subsoiling, outsloping and waterbarring, reducing impacts of roadside ditch drainage. Outsloping and water dipping the existing roads that remain in use would further reduce current erosion problems. Alternative 4 would have the greatest positive impact on hydrologic functions, with 13.8 miles of road decommissioned and 18 miles closed with gates and barricades. Road bed erosion and possible culvert washouts would be most likely under alternative 3.

No alternative presented here would affect Mule Creek or Whisky Creek or cause other streams to be added to the current list of streams considered water quality limited. Temperature regimes in all of the streams is therefore likely to be maintained in the long term since full ACS compliance has been prescribed for all action alternatives (Appendix 11).

The acreage of disturbed soils as a result of decommissioning of existing jeep and haul roads was calculated for each alternative. No decommissioning would occur under alternative 3. About 25 acres of disturbance would occur in alternatives 1 and 2 and up to about 25 acres in alternative 4. Sediment would likely remain on site if any erosion occurs. Ripping of the road surface with a winged subsoiler, normally results in little surface disturbance, therefore, the actual acreage estimates of exposed soils would likely be substantially lower than estimated. Realized disturbance levels would vary from site to site and erosion would be minimal. Observations have indicated little or no sediment production following ripping of other roads and compacted ground within the Glendale Resource Area, when used in conjunction with water-barring and mulching. The long-term benefit of decommissioning helps to

restore the natural hydrologic functions of infiltration and dispersed runoff into natural drainages.

4.4 Vegetation

4.4.1 Rare Plants, T&E, Special Status, Survey & Manage

Alternatives 1,2 and 4

Fritillaria gentneri is listed as endangered under the Endangered Species Act. Although it has been found in the Glendale Resource Area, the Wild Rogue watershed is outside of its range as determined by the USFWS. No effects to threatened or endangered plants are anticipated under any of the action alternatives.

The most intensive prescriptions would leave about 10-15 percent canopy cover, which would reduce the depth of but not eliminate any edge effects. Microclimate measurements show that interior conditions may not be found until 100 to over 790 feet from clearcuts or agricultural fields, depending on site conditions and weather, and the variable measured (Chen 1991, Rodrigues 1998). Some of the smaller microclimate differences appear to be irrelevant to biological systems, as edge effects on biological variables, such as plant regeneration and species composition, generally average around 200 to 250 feet, with a range of 50 to 450 feet, adjacent to cleared areas (Chen 1991, Rodrigues 1998, Jules 1997). Known locations of special status and Survey and Manage plants would be protected with at least 100-foot no-cut buffers, up to 200-foot buffers in regeneration and overstory removal units that would retain less than 40 percent canopy cover.. Thinning prescriptions leave up to 60 percent canopy. The buffers would exclude disturbances such as road construction and fuels treatments. Burning would be excluded from the buffers as some plants may be killed by direct heat. Some species which appear to prefer more open habitats, and may benefit from fire (e.g., *Allium bolanderi* var. *mirabile*, *Astragalus umbraticus*, *Illiamna latibracteata*) may have prescribed underburns within the buffers, on an experimental basis.

Based on the numbers in the literature mentioned above, and with the project design features relative to the actions proposed under alternatives 1, 2, and

4, the proposed buffers in all action alternatives would provide adequate microsite conditions to maintain the population at the site. Some populations of species which do not require protection, such as Bureau Tracking Species, have the potential to be extirpated by these same actions.

Alternative 3

Under the no-action alternative, ecological processes would continue undisturbed.

4.5 Fire and Fuels

Fuels management activities generate particulate pollutants in the process of treating natural and activity related fuels. Smoke from prescribed fire has the potential to effect air quality within and surrounding the CSNM. The use of prescribed fire for ecosystem restoration can produce enough fine particulate matter to be a public health and/or welfare concern. Fine particulate matter in smoke can travel many miles downwind impacting air quality in local communities, causing a safety hazard on public roads, impairing visibility in class I areas, and/or causing a general nuisance to the public. If properly managed, most negative effects of prescribed fire smoke can be minimized or eliminated. All action alternatives propose treatments to reduce fire hazard and decrease long-term adverse cumulative effects. This opportunity to reduce fire hazard would not occur under alternative 3.

Alternatives 1, 2, and 4

In the short term (10-25 years), logging would create fuel loadings on the ground which would be greater than current levels if they are not treated. Fuel amounts are measured in tons per acre for different size material. Material up to 3 inches in diameter has the greatest influence on the rate of spread and flame length of a fire, which has direct impacts on fire suppression efforts. It is anticipated that fuel loadings after thinning, if left untreated, would be increased by approximately 10-15 tons per acre. This would change the existing fuel model of most of the timbered stands from a timber litter fuel model 8 to a slash fuel model 11, which has a higher rate of spread and greater flame lengths. Regeneration harvest units would see an increase of 20-35 tons per acre and would be represented by a slash fuel model 12. These units would exhibit even higher rates of spread and flame lengths than the thinning units.

In stands identified for harvest, removal of smaller trees would reduce ladder fuels. Reducing canopy cover to 60 percent would reduce (but not completely eliminate) the potential for running crown fires. The ladder fuel induced crown fire potential would also be reduced. In stands identified for regeneration harvest, the reduction of heavy ground fuels would reduce fire hazard. The potential for a large fire occurring is reduced as stand density is reduced. Timber harvest would break up the vegetation and create a mosaic of age and size classes across the landscape. A mosaic of stand types would limit the potential of high intensity fires from burning entire drainages since this condition would slow the spread of fire and allow direct attack by hand crews (flame lengths must be less than 4 feet to allow direct attack).

Table 4-2 displays the associated changes in fire behavior due to a reduction in the dead, down woody material after the fuels have been treated. Rate of spread (ROS) of a fire on south slopes and ridge tops, represented by fuel model 2, would increase due to a change in the fuels. Harvest and fuels treatments would open the canopy and encourage the growth of grasses and forbs. These light, flashy fuels allow fires to burn faster than would larger fuels such as down, woody material. Although wildfire spread rates may increase, fires would be easier to control. Moist north slopes are represented by fuel model 8 and plantations are represented by fuel model 6 after treatment.

Treatments on dry, low-elevation sites and south-facing aspects, such as canyon live oak, and ponderosa pine, would reduce the existing high fuel hazard conditions. The risk of high fire intensities would be reduced if a wildfire would occur.

Establishing fuel modification zones (FMZs) along strategic ridge lines would meet several objectives. Crown fires would be less likely to start within these zones. Crown fires which originate outside of and burn into these zones would be less likely to continue to burn in the crowns, due to the wider spaced canopies within the FMZ. These zones also would provide a greater opportunity to stop the spread of a wildfire and keep it from burning the entire planning area.

FMZs would also provide an area which would be safer than what currently exists for wildfire suppression efforts. The FMZ would allow for rapid deployment of personnel and equipment which would help in reducing the size of wildfires. These areas could also be used as control lines for future underburning of high risk and high hazard areas,

which would further reduce the fuel hazard of the planning area. The impact of developing these FMZs would be the requirement to keep them clear of undergrowth every 5 to 10 years.

Typically, flame lengths of 2-4 feet are expected in the underburn units. The broadcast burn units are expected to exhibit more intense fire behavior, with 4-6 foot flame lengths, due to the high fuel loading in these units. The majority of fuel created and consumed by the proposed action would be 3 inches and less in diameter. These fuels typically burn out relatively fast with little heat transfer to soils with rapid burn out. This may result in less scorch and mortality to the residual stand in underburn units. Although some mortality is expected in the smaller diameter size classes as a result of the burn,, the hazard to the remainder of the stand would be reduced.

Full fire suppression would continue throughout the entire planning area in alternative 1. In alternatives 2 and 4 fire suppression in the ACEC would be done with limited use of mechanized equipment such as dozers or tractor lines. Heavy equipment would stay primarily on existing ridge roads. This strategy may create the potential of permitting a wildfire to grow larger than if a full suppression strategy were implemented.

Alternative 3

Standard fire suppression strategy would continue to be used throughout the entire planning area. Stand densities would remain unchanged; the trend to shade tolerant species would continue which would create a moderate increase in ladder fuels. As mortality continued in these stands, snag populations and down, woody fuels would continue to accumulate. Until a disturbance, such as fire, enters the stand, this trend would be unlikely to change. If a fire were to occur, rate of spread and flame length would be severe enough to prevent direct attack by hand crews. A wildfire would have the potential to cause a considerable amount of scorch and mortality of individual trees. The potential for a large fire to occur increases as the vegetation increases in density and becomes more continuous and homogeneous.

Untreated areas in all alternatives would perpetuate current conditions and in many mature stands, growth and deterioration would increase fuel loading. These conditions over time would increase the potential for a stand replacement fire within or adjacent to the planning area. Existing high hazard conditions would continue in brush fields, areas with

light, flashy fuels (south-facing slopes), and overstocked stands with ladder fuels. Continued fire suppression activities would allow pole-sized Douglas-fir and hardwoods to grow underneath large, overstory conifers, creating very dense stands that are prone to stand-replacing fires under extreme weather conditions. Fuel model 8 was used to represent plantations, model 4 was used to represent south slopes and ridge tops, and model 11 was used to represent fire behavior on moist north slopes in Table 4-2. Flame lengths and rates of spread are expected to be higher in this alternative due to a build up of down, woody fuels. Plantations are the exception because the canopy would remain closed and would not permit grasses to grow. The only fuel that would be on the ground to burn would be small twigs and needles from the overstory.

As the vegetation along maintenance level 2 and 3 roads grows in without maintenance treatments, access for firefighting crews would diminish. This could increase the amount of time it takes for initial attack resources to reach a fire, which might ultimately result in larger fires. A decrease in road access and a simultaneous increase in ladder fuels would increase the probability of a large, intense wildfire. This could lead to a greater chance of losing late successional habitat to wildfire events.

As recreational use increases in the analysis area, there may be a slight increase in the risk of human-caused wildfire occurrence, especially along major roads.

4.6 Late Successional Habitat

4.6.1 Introduction

This introduction provides a context for the analysis below. In the context of the RMP harvest occurring in the Matrix lands, preserving late successional old growth is not a management goal. Since Late-successional Reserves will take several years, however, to develop all of the characteristics of late-successional habitat, activities in the Matrix may result in short term (10-20 years) impacts to late-successional habitat and affiliated species; this will be the focus of the analysis. At the landscape scale of the fifth-field watershed, none of the alternatives would have large direct adverse effects on late-successional habitat. At the seventh-field or

subwatershed level (Map 8), however, effects become more noticeable.

4.6.2 Area of Critical Environmental Concern and Late-successional Habitat

Alternatives 1 and 3

No Areas of Critical Environmental Concern (ACEC) are proposed under alternatives 1 or 3. The RMP guidance would continue to be followed in the planning area, with no anticipated effects beyond those analyzed in the RMP/EIS.

Alternatives 2 and 4

An ACEC in the East Fork Whisky Creek subwatershed could be expected to provide long-term benefits for species affiliated with late-successional habitat, which is both adjacent to LSR, and to areas identified for connectivity in the Grave Creek and Middle Cow Creek watersheds. Alternative 2 would designate a 1,676 acre ACEC and alternative 4 would designate a 2,843 acre ACEC in the East Fork Whisky Creek subwatershed. While the effects from the smaller ACEC designation in alternative 2 would be less than alternative 4, both would be located in one of the connectivity areas of concern and also in northern spotted owl Critical Habitat. A benefit from having an ACEC would be the maintenance of late-successional habitat in this area.

4.6.3 Late Successional Habitat, Connectivity, and Fragmentation

Connectivity facilitates movement and genetic exchange among or between species. The threshold for impacts to connectivity is unknown. Although there would be some effect to connectivity, as described below, given the limited scale of regeneration harvest the effects are expected to be negligible.

The overall acreage of treatments affecting late-successional habitat within the planning area are displayed in Table 4-3.

Alternatives 1 and 2

Alternative 1 would have the higher impact on late-successional habitat compared to alternatives 2 or the no-action alternative, by removing almost twice the acreage of habitat as in alternative 2. The

proposed regeneration harvest may slightly impair movement of northern spotted owls, forest carnivores, and small mammals in the short-term because of decreased levels of canopy closure and increased exposure to predation. The overall effects are expected to be minor, and do not exceed those analyzed in the NFP/EIS.

Regeneration harvest in alternatives 1 and 2 would create a minor fragmentation of forested habitats and may impede northern spotted owl movement and increase the risk of predation. Fishers are known to experience adverse effects from forest fragmentation, including isolation. (USDA/USDI 1994). Additional adverse impacts to wildlife which accompany forest fragmentation and edge effects include quantitative and qualitative habitat losses, increased risk of predation, and increased competition between interior and edge species (Noss and Cooperrider 1994, Lehmkuhl and Ruggiero 1991).

Alternative 1 includes a proposal to treat areas where sugar pines are dying out to maintain and enhance this species in the West Fork Whisky Creek subwatershed. This area includes portions of a connectivity block located in T 33S, R 8W, sec. 9. This connectivity block currently has approximately 80 percent of its habitat in a late-successional forest condition. The proposed sugar pine treatments in this area are would affect up to 175 acres, but as described earlier, due to remaining residual canopy closure and limited opportunities for this treatment, impacts would be considerably less than this, so the treatment within the connectivity block would comply with the guidance in the RMP.

While the acreage of commercial thinning treatments of Matrix lands in alternative 2 would be similar in acreage to those in alternative 1; the difference would be that 60 percent canopy closure in the Mari-Kelsey prescription area would be maintained. This would be in contrast to the approximately 40 percent canopy retained under typical commercial thinning regimes in alternative 1. The short term effects of reduced canopy closure would be minor with a slight increased exposure to predation of northern spotted owls. Beneficial long term effects would include accelerated late-successional habitat development and canopy closures exceeding 60 percent which can be expected to further promote connectivity for late-successional affiliated wildlife (FEMAT 1993).

Commercial thinning which results in even spacing of trees may have short-term negative effects on spotted owl prey abundance (Waters and Zabel,

1995); fail to provide for the biotic integrity of small mammal communities (Wilson and Carey, 2000), and result in decreased abundance of amphibians (Grialou et. al., 2000).

Alternative 3

The lack of fuels treatments would increase the risk of stand replacement fire in older stands with existing dense timber and brush stands becoming denser over time. Catastrophic loss of vegetation would threaten late successional affiliated species which depend on these forest habitats for short term survival, reproduction and dispersal.

Under Alternative 3 the connectivity blocks would not be altered and no treatments would be proposed. One implication is that this alternative would not discourage the trend for sugar pine which appears to be a gradual loss of this important conifer species in the West Fork Whisky Creek subwatershed. Connectivity would not be impaired through timber harvest activities under the no action alternative since habitat would remain contiguous. Because commercial density management would not occur, late successional forest development in the LSR would not be accelerated beyond natural processes.

Alternative 4

Under alternative 4, since no regeneration harvest is proposed, it is expected that connectivity for northern spotted owls and forest carnivores would be maintained. There would be short term degradation of habitat through loss of canopy closure from commercial thinning treatments proposed for 570 acres in the Meadow Creek, Upper East Kelsey and West Fork Whisky subwatersheds. Although the extent of the increased risk of predation on northern spotted owls is unknown, it is expected to be minor because 40% canopy closure will be maintained.

4.6.4 Localized impacts on late-successional habitat

Under the action alternatives, adverse effects from proposed timber harvest are relatively small at the fifth-field watershed level. Effects at the seventh-field subwatershed level are more pronounced and detectable, particularly in the East Fork Kelsey Creek, Meadow Creek, and North Fork Kelsey and the north portion of the Kelsey Creek subwatersheds (see Map 8). Because these

particular subwatersheds are either adjacent to the LSR or are targeted for connectivity in the other alternatives, impacts on these areas are examined here in greater detail.

The effect of regeneration harvest in alternatives 1 and 2 in Upper East Kelsey and Meadow Creek subwatersheds would be great enough that there may be some reduction of habitat use and impedance of movement by late-successional affiliated wildlife. The effects of these proposed regeneration harvest on currently closed-canopy north-facing slopes would be greater than in other areas because of their strategic location in relation to this LSR, further highlighted by the Southwest Oregon LSRA (USDA/USDI 1995) which emphasizes the importance of an east-west older forest link. This connection would be affected by these proposed activities, as well as because these two subwatersheds have previously had little or no timber harvest

4.6.4.1 Upper East Kelsey subwatershed

Alternative 1

At the subwatershed level, under Alternative 1 the greatest adverse effects to late-successional affiliates would occur in the Upper East Kelsey subwatershed, due to the impacts from 10 timber harvest units comprising 349 acres of regeneration harvest (Table 4-4). This amount of harvest within the approximately 3,997 acre East Fork Kelsey subwatershed would remove 9 percent of the acres of existing mature or old-growth forest in this area. Alternative 1 would more than double the acreage of forest younger than thirty years.

Alternative 2

The most extensive regeneration harvest in alternative 2 would occur in Upper East Kelsey subwatershed, with a removal of 217 acres. This would include units #31-1, 6-2, 6-3, 6-4, 7-1, 35-1, 1-1, and 12-1. These units occur in the area expected to provide for connectivity. Consequently, habitat removal of 217 acres would not be consistent with the intent of this alternative, although scale is also important to factor in. At the fine scale, these impacts would comprise approximately 6 percent of the subwatershed, and 7 percent of the late-successional forest in this area. Units from alternative 1 which would be deferred in alternative 2 include #5-1, 1-2, and 6-5, with unit #6-3 reduced by about one-half. While these changes represent

a reduction from alternative 1, adverse effects from 217 acres of proposed regeneration harvest would be substantial at the subwatershed level. This proposal would approximately double the amount of forest younger than 30 years of age in this subwatershed, compared with alternative 1. The 24 acres of proposed commercial thins in Upper East Kelsey subwatershed in this alternative would be the same as those proposed in alternative 1. These 24 acres, along with the 30 acres of commercial density management would be expected to degrade late-successional habitat in the short term. Within 20-30 years canopy closure would be expected to return to pre-harvest level. These actions would also be expected to accelerate growth of late successional forest.

Alternative 4

Under alternative 4 there would be no regeneration harvest, and thus no late-successional habitat removal. The 24 acres of commercial thinning and 30 acres of commercial density management would be expected to result in accelerated growth of the residual trees in the long term, with a short term degradation of late-successional habitat through reduced canopy closure.

4.6.4.2 Meadow Creek subwatershed

Alternative 1

Regeneration harvest may impede some movement of late-successionally affiliated species between older forest patches. This would be minimized, however, through continued ability to move through functioning riparian reserves. The acreage of forest under thirty years in this subwatershed would go from its current 0 percent to almost 6 percent under alternative 1. Currently, approximately 2,254 of the 2,459 acres in the previously un-entered Meadow Creek subwatershed are in mature or old-growth forest condition. Proposed regeneration harvest actions would affect 128 acres in these forest types, or about 6 percent of the late-successional forest habitat in this subwatershed (Table 4-5). The 27 acres of proposed commercial density management in the Meadow Creek subwatershed, which lies adjacent to the LSR, would provide benefits for late-successional habitat by promoting and accelerating development of late-successional characteristics.

Alternative 2

In this previously unentered subwatershed, impacts to movement of late-successionally affiliated species between older forest patches would be similar to those described for alternative 1. The Meadow Creek subwatershed would be the next most affected area from regeneration harvest after Upper East Kelsey. Alternative 2 would involve 119 acres of regeneration harvest in this 2,459 acre subwatershed, almost the same as the 128 acres proposed in alternative 1, with nine less acres in unit #13-1. The proposed 119 acres of regeneration harvest comprise approximately 5 percent of this subwatershed.

Alternative 4

Alternative 4 has no regeneration harvest proposed in this subwatershed and therefore, would result in no late-successional habitat removal. Commercial thinning would have impacts similar to those described for the Upper East Kelsey subwatershed.

Alternative 1

Since canopy closure would be maintained at 60% in this subwatershed, no adverse effects to owl movement are expected from commercial thinning. The 137 acres of regeneration harvest may have minor impacts on habitat use and movements by northern spotted owls as a result of reduced canopy closure.

Alternative 2

Under alternative 2, regeneration harvest of 20 acres would occur in this subwatershed. There would be an additional 385 acres of commercial thinning. Because this area is expected to play a role in connectivity for late-successionally affiliated species, thinning treatments in this area would maintain 60 percent canopy closure in harvest units. It is, therefore, expected that there would be slight short term degradation of late-successional habitat. In the long term, growth of residual trees would be expected to accelerate from the treatment, although not as rapidly as typically occurs in a commercial thinning in which 40 percent canopy closure is left.

Alternative 4

Under alternative 4 no habitat removal activities are planned and the 385 acres of commercial thinning would be expected to accelerate growth of late-successional characteristics as described for alternative 2.

Cumulative Effects

Past harvest (Trapper's Trap timber sale) in the adjoining subwatershed has left 39 percent of the habitat in a late-successional condition, and connectivity for northern spotted owl movement through the Kelsey Creek area is therefore generally more difficult in this vicinity.

4.6.4.3 North Fork Kelsey Creek subwatershed

Alternative 1

Since canopy closure would be maintained at 60% in this subwatershed, no adverse effects to owl movement are expected from commercial thinning. The 137 acres of regeneration harvest may have minor impacts on habitat use and movements by northern spotted owls as a result of reduced canopy closure.

Alternative 2

Under alternative 2, regeneration harvest of 20 acres would occur in this subwatershed. There would be an additional 385 acres of commercial thinning. Because this area is expected to play a role in connectivity for late-successionally affiliated species, thinning treatments in this area would maintain 60 percent canopy closure in harvest units. It is, therefore, expected that there would be slight short term degradation of late-successional habitat. In the long term, growth of residual trees would be expected to accelerate from the treatment, although not as rapidly as typically occurs in a commercial thinning in which 40 percent canopy closure is left.

Alternative 4

Under alternative 4 no habitat removal activities are planned and the 385 acres of commercial thinning would be expected to accelerate growth of late-successional characteristics as described for alternative 2.

Cumulative Effects

Past harvest (Trapper's Trap timber sale) in the adjoining subwatershed has left 39 percent of the habitat in a late-successional condition, and connectivity for northern spotted owl movement through the Kelsey Creek area is therefore generally more difficult in this vicinity.

4.6.4.4 West Fork Whisky Creek subwatershed

Alternatives 1 and 2

Sugar pine treatments under the action alternatives would remove up to 1/8 acre of canopy around each sugar pine, and involve up to two trees per acre in a 1,091 acre area. Under the worst case scenario, 273 acres of habitat would be altered from a suitable to unsuitable condition by reduction in forest canopy. However, the actual results of this treatment would likely be considerably less than 273 acres, since not all canopy within the 1/8 acre around each sugar pine would be removed; the pine itself would provide some canopy; and it is unlikely two trees per acre would be found on every acre proposed for treatment. The impacts of the treatment in alternative 2 would have the same impacts as described in alternative 1, with the exception that there would be no salvage incidental to this activity, which would result in more snags remaining.

Alternative 4

The impacts from sugar pine treatments would be similar to those in described above for alternatives 1 and 2, with the exception of acres involved. The area would involve 1,105 acres with removal of a maximum of 277 acres of suitable habitat.

4.6.4.5 Road Construction

According to biologists of the Oregon Dept. of Fish and Wildlife, this area has one of the highest black bear densities in the state of Oregon, in part due to low road densities (Wolfer, pers. comm., 1999). Portions of the analysis area were also identified as a priority for lowering road densities to improve elk populations. The proposed new permanent roads would have a small impact on these species, and the species would benefit from the proposed decommissioning. For analytical purposes, all temporary road construction was assumed to have removed late-successional habitat.

Alternative 1

Under alternative 1, there would be an additional 1.7 miles of permanent new road construction, including two permanent roads within the home range of the Kelsey's Demise northern spotted owl pair (#2069). The road in T 33S, R 8W, sec. 6, T 33S, R 9W, sec. 1, and T 32S, R 8W, sec. 31 would disturb 5.9 acres, including approximately 3 acres of late-

successional habitat. The road in T 33S, R 8W, sec. 6 and 7 would remove 2.9 acres of late-successional habitat. These two roads, which would remove 5.9 acres of late-successional habitat through vegetation removal, resulting in an irretrievable commitment of resources. There would be an additional indirect effect from the 1.7 miles of permanent road construction in providing additional opportunities for human intrusion and subsequent disturbance to late-successional wildlife species. Conversely, these two roads would also provide an additional opportunity to act as a fuel-break and assist in access for fire suppression activities.

The loss of physical structure and canopy closure resulting from 1.7 miles of proposed new roads, removing 5.9 acres of habitat in the Upper East Kelsey subwatershed may affect the use of this area by uncommon and wide-ranging late-successional forest carnivores, including marten and fisher (USDA 1994c) through fragmentation of late-successional habitat.

The 2.0 miles of temporary road construction under alternative 1 would cause impacts to approximately 7 acres of late-successional habitat, since it would take approximately 60-80 years to begin to approach mature forested habitat within the road prism.

Alternative 1 also includes approximately 10.4 miles of road decommissioning, including approximately 4 miles of road decommissioning in the LSR, which would result in an accelerated development of late-successional habitat, and reduced disturbance to wildlife species. However, it would have potential adverse effects for the opportunity to more effectively fight wildfire from roads.

Alternative 2

Under alternative 2, there would be no irretrievable commitment of resources as a result of permanent road construction, since there would be no new permanent roads constructed. Alternative 2 would remove 1.9 miles of forest through temporary road construction. The impacts to 7 acres of late-successional habitat would be similar to those described for alternative 1.

Alternatives 2 differs from alternative 1 with a proposal to install two gates on BLM road #32-7-19.3, thereby limiting general public access to approximately 160 acres of private in-holdings. The result of this action would be to limit disturbance from motor vehicles in the Meadow Creek subwatershed, and the southern portion of the

Upper East Kelsey subwatershed. This would be a benefit to several wildlife species such as elk and bear.

Alternative 2 would also include 10.4 miles of road decommissioning. Benefits and costs would be similar to those described under alternative 1.

Alternative 3

Under alternative 3, routine road maintenance would continue to occur. Current low levels of recreational road use would also continue to occur, with continued relative low levels of disturbance to wildlife. The negative effects of road construction proposed under the action alternatives would not occur, and the positive effects of road decommissioning would not occur.

Alternative 4

Under alternative 4 there would be no road construction. The effects from 14.3 miles of proposed road decommissioning are described under alternative 2.

4.6.4.6 Fuels Treatments

Fire is the most important agent of disturbance in the Klamath Province (USDA/USDI 1995). The proposed underburns, mechanical fuels treatments, and slashing, hand-piling, and burning would reduce the vertical fuel ladders and overstocked conditions in upper elevations of the watershed where risk of catastrophic fire is especially high due to lightning strikes, subsequently reducing the risk of loss to both late-successional habitat and important connectivity areas in West and East Fork Whisky Creeks. The underburning proposals would reduce ground and small-diameter ladder fuels, but because these burns would occur in spring when there is high moisture content, material larger than 3-6" would not be lost, and therefore there would be minimal effects on late-successional habitat. Mechanical fuels treatments would maintain dominant and co-dominant trees, and therefore there would be only minor impacts to canopy closure through removal of intermediate and suppressed trees. The slash/pile/burning treatments would target small-diameter material, and it is therefore expected late-successional habitat would not be adversely affected. However, there would be a small risk from both underburning and slash/pile burning of escapement, and subsequent threat to the LSR. The non-commercial density management, commercial

density management, pre-commercial thinning, and commercial thinning would all further assist in reducing the risk of stand-replacement fire by reduction in the number of small stems per acre, the most combustible material (Agee 1993). In addition, vegetation would quickly recover in treated areas, requiring continuous treatments over several entries for this approach to be successful in reducing catastrophic fire risk to late-successional habitat.

Alternative 1

The 1,129 acres of underburns, 289 acres of mechanical fuels treatments, and 1,823 acres of slashing, hand-piling, and burning proposed under alternative 1 would reduce the vertical fuel ladders and overstocked conditions in upper elevations of the watershed where risk of catastrophic fire is especially high due to lightning strikes, subsequently reducing the risk of loss to both late-successional habitat and important connectivity areas in West and East Fork Whisky Creeks. The fuel treatments would have potential adverse impacts to some species with low mobility such as salamanders and invertebrates. These treatments would provide additional protection to the important connectivity subwatersheds of West and East Fork Whisky Creeks, and would also provide limited protection in reducing downslope progression of fire into the LSR. There would be minor adverse effects to some species with low mobility such as salamanders and invertebrates as a result of brushing, piling, and removal of small diameter material.

Alternative 2

Under alternative 2, the impacts from fuels treatments would be similar to those under alternative 1, except that there would be 14 fewer acres of manual fuels treatments. An estimated 2,542 acres of fuels treatments associated with timber harvest would be done.

Alternative 3

Under alternative 3, no fuels treatments are proposed, and the late-successional habitat would be at increased risk of loss from catastrophic fire with continued and increased fuel loading, as discussed in the fuels section.

Alternative 4

Under alternative 4, the effects of fuels treatments would be similar to those under alternative 1 except

that there would be 14 fewer acres of manual fuels treatments and 13 acres fewer mechanical fuels treatments. There would be a total of 1,971 acres of fuels treatments associated with timber harvest.

4.6.4.7 Other Impacts

The three pond enhancement projects proposed in alternative 1, and four projects proposed in alternatives 2 and 4, would not have any substantial impacts on late-successional forest.

The approximately 221 acres of young pine conversion to Douglas-fir dominated forest in the action alternatives would have very minor effects on late-successional forest development, since this forested area is not mature. In the long term, the Douglas-fir plant association would be better suited to this area.

4.6.4.8 Snags and Coarse Woody Debris

The relative impacts of the various alternatives depend on the acreage affected by management actions (Appendix 2, Table 2-1).

Much of the analysis area does not meet revised standards for snags and large downed wood described in the Memorandum of Understanding (MOU) for Refining and Implementing Coarse Wood Requirements (USDA 2000). This condition applies to stands that have been previously logged as well as for stands that have not been logged. This assessment is based on information from the Southwest Oregon LSR Assessment (USDA/USDI 1995), information from the Cold Mule timber sale monitoring, and field observations. Snags and large downed wood are important habitat components for a wide array of species, including northern spotted owls, wood rats, martens, fishers, Del Norte salamanders, a variety of cavity-nesting birds, bats, black bears, marten and fisher (USDA 1994c). Martens failed the viability screen in the NFP (USDA/USDI 1994) primarily because matrix habitat conditions for foraging and denning were inadequate, including key marten habitat components such as coarse woody debris.

Alternative 1

Alternative 1 would have the greatest impact by affecting the largest acreage with regeneration harvests and road construction. The proposed treatment around pines in the West Fork Whisky subwatershed would permit salvage logging, which

would reduce potential recruitment of large downed wood.

Alternative 1 would allow salvage removal of excess snags. No downed logs would be removed. However, this would limit future recruitment of large downed wood in an area where field observations show there is little to begin with.

Regeneration harvests and commercial thins would further reduce and adversely impact this important structural characteristic for many wildlife species. The commercial thins would have a lesser impact than regeneration harvests by retaining snags, large green trees, and coarse woody debris. However, both regeneration harvest and commercial thins would have a negative effect on large down wood. The effect would be mitigated by retaining additional green trees in regeneration harvest units, as called for in the RMP and following the revised standards for downed woody debris. The net effect would still be below the level described in the latest standards.

Commercial density management, non-commercial density management, and pre-commercial thinning would promote greater growth on the remaining trees, which could be expected to produce larger snags and downed wood in the future. In addition, some snags would be lost due to safety considerations and some of the retained trees, snags, or large downed wood may be lost during site preparation (broadcast burning), or as a result of blow down once the stand has been opened.

Fuels treatment proposals involving slash/pile/burning, under-burning, mechanical fuels treatments would also remove snags and large downed wood, but the amount of loss is unknown. While the focus of these proposals is reduction in small-diameter material, there would be some minor adverse effects through incidental removal of large wood in these operations.

Finally, road construction would result in the direct removal of coarse woody debris and snags. The effect is negligible because it encompasses such a small percentage of the total area.

Alternative 2

Alternative 2 would have smaller impacts than Alternative 1, since the acreage affected would be smaller and there would be no salvage included in the pine treatments in West Fork Whisky Creek.

Alternative 3

Alternative 3 would result in the continued development of older forests in the analysis area, with the effect of contributing additional standing and downed large wood.

Alternative 4

Alternative 4 would be similar to Alternative 2 but with reduced impact because of approximately 25 percent less commercial thinning, and no regeneration harvest, and therefore would leave more snags and large downed wood on the landscape. This alternative also has no impacts to snags and large downed wood from road construction, since neither permanent nor temporary roads are proposed.

4.6.4.9 Habitat Diversity

Under alternative 1, openings would increase since the proposed 628 acres of regeneration harvest would create greater amounts of relatively uncommon early seral conditions in the analysis area. For the short term (about five years), where regeneration harvest has occurred there would be an increased amount of herbaceous vegetation for game species such as elk. Habitat diversity would also be increased by the proposed 289 acres of mechanical fuels treatments, which would create additional early seral habitat. Wetland enhancements proposed at three sites would also increase this unique and relatively uncommon habitat type in the analysis area. The impacts would be similar to those in alternative 2 but over fewer acres and would not occur under alternative 4, since no regeneration harvest is being proposed.

All the action alternatives propose sugar pine treatments in the West Fork Whisky Creek subwatershed, which would help to maintain diversity of tree species in the landscape.

The four wetland enhancements (three in Alternative 1) would also provide additional diversity of this very limited habitat type within the analysis area.

Under Alternative 3, habitat diversity in the analysis area would diminish slightly, with the continued growth of conifers and further development of largely homogenous conifer forest, continued fading of sugar pines in the West Fork Whisky Creek subwatershed, and continued declines of meadow habitats as a result of conifer encroachment.

4.6.5 Survey and Manage Animal Species

Alternatives 1 and 2 would result in the reduction in canopy closure as a result of regeneration harvest and overstory removal treatments, which would adversely affect species associated with late-successional habitat which need higher levels of canopy closure, including red tree voles. Management recommendations for this species (USDA/USDI 2000a) cite several concerns, including:

- forest fragmentation and isolation of late-successional patches which may prevent gene flow and adversely affect meta-population dynamics,
- increased geographic isolation of remaining populations could occur,
- management activities that target the removal of older trees and removal of older stand types through regeneration harvest could alter forest microclimate conditions
- management activities may create barriers to dispersal between LSRs,
- habitat fragmentation could increase potential loss of genetic variability in populations, and
- management activities may reduce forest patch size which could have adverse effects on short- and long-term survival and successful reproduction.

There would be a small direct effect on red tree voles as a result of the proposed regeneration harvest as surveys prior treatments would be done to establish buffers. The greatest effect to this species would occur in the Upper East Kelsey Creek and the Meadow Creek sub-watersheds. Great grey owls, species which utilize large meadows, may benefit from the temporary conversion of these acres to early seral habitat. Flammulated owls, a protection buffer species, are known to occur along the Rogue River (J. Sanborn, pers. comm.), and are dependent upon snags, especially pine.

The extent of the impact varies among the action alternatives with the acreage to be regeneration harvested, with alternative 1 having the greatest adverse impact and alternative 4 none as there are no regeneration harvests proposed. The proposed commercial thins, which would reduce canopy closure below 60 percent, would have a very minor, short-term (10-20 years) impact on red tree voles

The construction of permanent and temporary roads proposed in the Alternatives 1 and 2 would adversely affect red tree voles by direct removal of 9 - 22 acres of suitable habitat. The indirect effects from creating a potential barrier to red tree vole movement would not be adverse, since this species has been tracked with radio telemetry crossing small forest roads (USDA/USDI 2000b). The small amount of road construction would not have a pronounced effect on great grey owls. Again, the impacts vary among the alternatives based on the extent of proposed road construction (Table 2-1, Appendix 3). There would be no loss of habitat due to road construction under alternatives 3 and 4.

Alternative 3, the No Action Alternative would benefit red tree vole populations with the additional approximately 1,000 acres of mature forested habitat which would develop over the next decade. These acres would primarily develop in Douglas-fir forest, and therefore would improve nesting and foraging habitat for these rodents. Great gray owls would be slightly adversely affected with the continued encroachment of conifers into the limited meadow habitats.

The proposed fuels treatments in the action alternatives would have the potential for adverse effects on red tree vole populations as there is the possibility of fire in the crowns of occupied trees resulting from underburning operations. There would also be risk of escaped fire resulting from human-induced activities associated with timber harvest operations increases the risk to red tree voles. Conversely, fuels treatments would reduce the risk of stand-replacement wildfire in the analysis area. Therefore, the proposed fuels treatments may have a beneficial effect on this species. Great grey owls may benefit slightly from the additional openings created by fuels treatments.

There would be minor impacts to two survey and manage mollusc species as a result of regeneration and overstory removal treatments in alternatives 1 and 2 from substantial reduction in canopy closure. The Chace Sideband, *Monadenia chaceana*, is known to occupy late-successional forest. According to USDA/USDI Management Recommendations (1999) for this species, the agencies are to manage all populated sites to provide conditions necessary to maintain cool moist temperatures in fall and spring, including undisturbed vegetative cover. While treatment areas would be surveyed prior to ground-disturbing activities with equivalent-effort surveys, in conformance with the Supplemental Survey and Manage ROD and Standards and Guides, and

known sites would be protected, habitats would be altered and there would be adverse effects because of the species' slow dispersal ability. Although the Oregon Shoulderband, *Helminthoglypta hertleini* is less closely associated to late-successional forest than the Chace Sideband, the USDA/USDI Management Recommendations (1999) also note the importance of vegetative cover for this species, and consider one of the major threats to the species to be activities which create increased temperatures, such as those which will result from regeneration harvest and overstory removal treatments. This species would also be adversely affected by these proposed harvest treatments. Similarly, the proposed burning operations in all alternative which involve prescribed fire would adversely affect these species, since they cannot tolerate extremely dry conditions, and again are slow to disperse. The proposed road construction which would affect 19 acres is further expected to adversely affect these species due to the creation of open conditions.

4.6.6 Summary of effects on late-successional habitat and species

Alternative 1

Alternative 1 would have the greatest degree of impacts at the sub-watershed level, with some substantive, direct removal of late-successional habitat in the East Fork Kelsey and Meadow Creek sub-watersheds. These areas are adjacent to the North Fork Kelsey Creek subwatershed which previously has had substantial removal of late-successional habitat. There would also be irretrievable impacts to late-successional habitat from construction of 1.7 miles of new permanent roads, but at the 5th field watershed scale this construction is negligible. Fuels treatments would increase short-term risk but reduce long-term hazard of catastrophic fires.

Alternative 2

Alternative 2 emphasizes maintenance of connectivity by maintaining a higher level of residual canopy closure, deferring some regeneration harvest units, and generally promoting connectivity into and out of the LSR through a connectivity band northward through North Fork Kelsey Creek subwatershed. There would still substantial direct adverse effects to late-successional habitat from regeneration harvest in East Fork Kelsey and

Meadow Creek sub-watersheds. There would be no permanent road impacts, and fuels treatment effects are similar to those under alternative 1.

Alternative 3

Alternative 3, the no action alternative would result in a small increase in late-successional forest as additional growth occurs in the present forested stands. Roads would be routinely maintained. The risk from catastrophic fire would continue to increase with the growth of additional fuel ladders and dead and downed material.

Alternative 4

Alternative 4 is designed to focus on forest health. There would be no regeneration harvest, and therefore no direct removal of late-successional habitat. There also would be no permanent road construction, so the impacts described in Alternative 1 would not occur. Beneficial long-term fuels treatment effects would be similar to the other two action alternatives.

4.6.7 Cumulative Effects on Late-successional habitat

Past timber harvest on federal lands in the Upper Kelsey Creek, Long Gulch, and East Fork Kelsey sub-watershed clearcuts, along with both federal and private timber harvest in the Mule Creek sub-watershed, have reduced the quality and quantity of late-successional habitat in the analysis area (USDI 1999). The current proposals do not include additional timber harvest in these areas.

Road construction to support past timber harvest has resulted in relatively high road densities in the three areas mentioned above, but in low road densities in other parts of the planning area. The proposals in the action alternatives would contribute only a minor addition to the impacts on late-successional habitat. However, they do provide access for future timber harvest.

The proposed fuels treatments proposed also provide the opportunity to reduce the future risk to late-successional habitat from catastrophic wildfires. This would be the first time such landscape level fuels treatments are implemented in this planning area. The cumulative effect on late-successional habitat would be relatively minor, but the actions would contribute to long-term maintenance of older

late-successional habitat in the watershed and would reduce the future risk to late-successional habitat from catastrophic wildfires.

4.7 Unique Habitats

Ponds

Under Alternative 1, the three pond enhancement proposals would provide benefits for wetland-dependent wildlife through an increase in both the size of the standing water and the duration of inundation. Alternatives 2 and 4 propose four wetland enhancement opportunities, one more than in Alternative 1, which would enhance unique and uncommon wetlands habitats in the analysis area. There is a potential risk of impacts from invading bullfrogs and which feed on native amphibians.

Sugar Pines

The proposed sugar pine treatment in the West Fork Whisky Creek subwatershed in the action alternatives would benefit this valuable conifer species and assure maintenance of these conifers in an area in which it appears they are substantially declining. Alternative 3 would not enhance these unique habitats, since wetlands would not be maintained or enhanced, and the remnant old-growth sugar pines would most likely continue to decline in the West Fork Whisky Creek subwatershed.

4.8 Threatened or Endangered Wildlife Species

4.8.1 Northern Spotted Owls

The primary reason for listing the northern spotted owl as a threatened species involved concerns over the impact of habitat loss (issue 3) and modification resulting from timber harvest (USDA/USDI 1994b). Movement of spotted owls between large pair areas is thought to be crucial to the long-term persistence and viability of the species (USDA/USDI 1990).

4.8.1.1 Spotted Owl Suitable habitat

A home range analysis was conducted for each of the activity centers potentially affected by proposed management actions. Suitable northern spotted owl habitat was evaluated using aerial photography and Forest Operations Inventory (FOI) data to evaluate whether habitat was capable of supporting successful nesting, roosting, and foraging, including stands with trees 21"dbh or greater with 60 percent or greater canopy closure (USDI 1998). In addition, all management actions were evaluated on the ground to determine the status of suitable habitat.

Regeneration and overstory removal units would remove suitable northern spotted owl habitat. Spotted owls have been shown to avoid clearcut areas in radio-telemetry studies (Miller 1989). Activities which involved commercial thins or commercial density management were considered as degrading suitable habitat to dispersal, and would regain suitable values within about thirty years (USDA/USDI 1998). In addition to the removal of green trees within suitable spotted owl habitat, a reduction in snags, and dead and down woody material would occur with regeneration harvest. Since owls do not build nests but depend on cavities, broken-topped trees, naturally occurring platforms, and nests built by other species, direct loss of green trees as a result of regeneration harvest, and related loss of future snag recruitment, has an additional adverse effect on northern spotted owls.

The lack of fuels treatments would put northern spotted owls and their late-successional habitat at greater risk of catastrophic fire with buildup of ladder fuels, greater stems per acre, and continuous forest canopy.

Permanent road construction would have an irretrievable direct effect of removing suitable habitat. Temporary road construction would have a similar effect on suitable habitat of northern spotted owls through the direct removal of suitable habitat, but would be expected to return to a functional condition of 60 percent canopy closure and trees averaging 11"dbh in approximately 50-60 years. The permanent road could not be expected to return to a functional habitat condition until the roadbed was ripped and planted for rehabilitation.

Alternative 1

Alternative 1 would have the greatest degree of adverse effects on northern spotted owl suitable habitat, largely as a result of the 628 acres of regeneration harvest. It would, however, benefit the spotted owl suitable habitat development as a result of 10.4 miles of road decommissioning. The proposed road decommissioning would result in accelerated development of suitable owl habitat, and reduced forest fragmentation, which would subsequently reduce the risk of predation on northern spotted owls. The level of impact varies between the alternatives based on the miles of road to be decommissioned (Table 2-1, Appendix 3). The use of chain saws, heavy machinery, and other fuel-driven equipment would increase the risk of human-induced wildfire. Also, heavy concentration of fuels generated by harvest activities that are left (i.e., lopped and scattered) may contribute to excessive fuel loading in the area and increase the likelihood of ignitions and stand-replacement fires, which would threaten suitable owl habitat. The level of impacts would be similar between the alternatives, but alternative 1 would have slightly larger impacts, while alternative 4 would have slightly smaller impacts.

Alternative 2

Alternative 2 proposes 355 acres of regeneration harvest, which would completely remove suitable northern spotted owl habitat, an irretrievable commitment of resources. In approximately 60 years the area would be expected to return to suitable habitat conditions. Commercial thinning under this alternative would maintain 60 percent canopy closure, the minimum necessary for habitat suitability for northern spotted owls, and therefore would not degrade suitable northern spotted owl habitat to a non-suitable condition. Therefore, this alternative would remove or degrade a total of 370 acres of currently suitable northern spotted owl habitat. Impacts from road decommissioning would be similar to those in alternative 1.

Alternative 3

Under Alternative 3, the No Action Alternative suitable conditions for owl nesting, roosting, or foraging would be maintained. East Fork Whisky Creek drainage would remain an important area for dispersal between watersheds. Alternative 3 would result in no benefit to spotted owl habitat from road decommissioning. Impacts from machinery may also occur under the no action alternative, since

some maintenance activities may still occur. These may include roadside brushing, plantation brushing and pre-commercial thinning and road maintenance. The action alternatives would take place in addition to the baseline that the no-action alternative represents, so the potential impacts under alternative 3 would be substantially lower than the other alternatives.

Alternative 4

The harvest proposed under Alternative 4 would have smaller impacts to suitable owl habitat than the other action alternatives since there would be no regeneration harvest or permanent road construction. This alternative includes approximately 823 acres of commercial thinning and commercial density management treatments. Of this total, there would be approximately 517 acres where at least 60 percent canopy closure would be retained. The remaining 306 acres of these types of treatments would reduce canopy closure below 60 percent, thereby having short-term, but only minor adverse impacts on connectivity, since canopy closure would only be reduced to about 40-50 percent and those stands would return to 60 percent canopy closure within a decade. The commercial thinning and commercial density management treatments would all serve to promote spotted owl habitat and connectivity in the long term. With 14.3 miles of road to be decommissioned in alternative 4, development of spotted owl suitable habitat is expected to be the greatest of all the action alternatives from this activity.

4.8.1.2 Spotted Owl Sites

As previously described, there are 28 northern spotted owl pairs or territorial singles within the analysis area, including 13 north of the Rogue River where management actions are being proposed. Currently, 12 of these 13 activity centers have more than 40 percent of the area within 1.3 miles of the activity center in suitable habitat condition. Adequate habitat is expected to be present to maintain survival and reproductive capabilities. The proposed fuel treatments would provide additional protection for northern spotted owl activity centers by reducing tree density, ladder fuels, and generally decreasing the risk of stand-replacement fires.

Table 4-8 summarizes the impacts of the alternatives on the spotted owl sites within 1.3 miles of the proposed actions. They would all continue to be considered viable sites following proposed harvest activities. All of the spotted owl activity

centers affected by proposed activities under each alternative would retain more than 40 percent suitable habitat within their 1.3 miles of home range.

Alternative 1

It is uncertain as to whether there would be an effect to the Kelsey's Demise activity center. Reproductive success may or may not be impaired. The Kelsey's Demise activity center (#2069) would be the site most severely affected of the five activity centers, with a 18 percent reduction in suitable habitat from timber harvest. Potential adverse direct effects on the reproductive success of the Kelsey's Demise pair may result from habitat removal. The proposed road construction in T 33S, R 9W, section 1, located adjacent to the 100-acre core area, would occur within 1/4 mile of the activity center. There may be further indirect effects from future harvest and recreational activities enabled by the existence of the road. The road construction, itself, would occur outside of the nesting season, which would minimize direct effects to the pair.

It is uncertain what effect on reproductive success the regeneration harvest in suitable habitat would have. The KCNA activity center (#3280) is expected to lose a total of 315 acres or 17 percent of its suitable habitat. This is derived from impacts resulting from 113 acres of regeneration harvest and 202 acres of degradation to dispersal habitat condition.

The Cool Springs activity center (#3282) is expected to lose 54 acres of suitable habitat representing 2 percent of its existing suitable habitat. Degradation of an additional 268 acres is expected within this home range including the proposed sugar pine treatments in the West Fork Whisky Creek subwatershed. It is unclear what the effects, if any, on habitat suitability would be a result from these proposed small openings. If the two openings per acre had the effect of reducing the suitability on that 1/4 acre, approximately 140 acres of suitable habitat would be removed. Therefore, the post-treatment amount of suitable habitat for this pair's home range would be 2,424 acres, representing a reduction of 12 percent.

A 50 acre regeneration harvest unit (Unit #1-2) would be located adjacent to Late-successional Reserve and about 0.5 miles west of the Kelsey's Demise owl site. Another regeneration harvest unit (Unit #6-5) of 26 acres would be adjacent to this same owl activity center on the southeast. These two units, in combination with 161 acres of other

regeneration harvest within the same section, may impede successful dispersal of northern spotted owls and other late-successional affiliated species. Although there will be 54 acres of proposed regeneration harvest treatments in the vicinity of the Cool Springs activity center the effect would be negligible relative to the ability of northern spotted owls to disperse from the Galice/Fish Hook LSR east and northeast across the Grave Creek watershed to the nearest LSR to the east, the Galesville/ South Umpqua LSR.

Alternative 2

Because there is considerably less regeneration harvest in alternative 2 compared to alternative 1, direct effects of habitat removal are lower. Degradation of currently suitable habitat to dispersal condition is comparable between alternatives 1 and 2. The KCNA activity center would lose 14 percent of its suitable habitat, resulting from 34 acres of regeneration harvest and 237 acres degraded to dispersal habitat conditions. The 231 acres of habitat proposed for removal under alternative 2 would result in a 10 percent loss of suitable habitat in the Kelsey's Demise home range. The Cool Springs activity center would lose 18 acres of suitable habitat and have degradation of 140 acres to an unsuitable condition with impacts similar to those under alternative 1. The remaining 2,588 acres of suitable habitat represent a 6 percent reduction in suitable habitat in the activity center.

Alternative 2 would benefit owl dispersal through the additional habitat protection provided by the proposed ACEC in the northeast portion of the planning area.

Alternative 3

Over time there would be an increased risk of wildfire through increase in stand density, increase in ladder fuels, and no planned fuels treatments in areas known to be high hazard. As fires might occur in unpredictable locations, spotted owl sites would be as much at risk as other resources.

Alternative 4

As there is no regeneration harvest proposed for alternative 4, there would be no direct effects from habitat removal. Conversion of suitable habitat to a dispersal condition would be comparable to alternative 2. Cool Springs activity center would have a 10 percent loss with 275 acres degraded from suitable condition to dispersal habitat. In

Kelsey's Demise activity center, 80 acres would be degraded from a currently suitable condition to dispersal habitat, representing a loss of 4 percent. The KCNA activity center would have 4 percent or 84 acres degraded from suitable condition to dispersal habitat.

Alternative 4 would provide greater benefits for spotted owls than alternative 3 (the no action alternative) due to increased habitat protection that would be provided by the proposed ACEC and forest health treatments designed to accelerate growth of late-successional habitat conditions which would also encourage dispersal.

4.8.1.3 Spotted Owl Critical Habitat

The area immediately east of the LSR includes a large block of northern spotted owl Critical Habitat. Critical Habitat for the northern spotted owl was identified on January 15, 1992 (57 FR 1796) for specific areas which provide the primary needs (constituent elements) essential for the conservation of the species. These needs include essential nesting, roosting, and foraging habitat (USDI 1994). The actions which are proposed in this alternative may affect northern spotted owl Critical Habitat through habitat removal, habitat degradation, and actions which appreciably slow the development of spotted owl habitat. While regeneration harvest, overstory removal, and commercial thins all have these effects on Critical Habitat, the greatest adverse effects occur through habitat removal resulting from regeneration harvest and overstory removal. These harvest practices practically eliminate forest canopy closure, greatly heighten the risks from predation, limit the ability to thermoregulate and remove available nesting components.

There are two spotted owl Critical Habitat Units (CHU) located in the planning area: #OR-65 and #OR-67. Both CHUs would be affected by the proposed alternatives. The impacts to #OR-67 would be minimal, since only 18 acres would be commercially thinned under alternatives 1, 2 and 4 and a 60 percent canopy closure would be maintained. Impacts to CHU #OR-65 would be greater, as shown in Table 4- 9. This CHU was designated to provide inter-provincial links between the Klamath Mountains Province and the Cascades Province, and between the Klamath Mountains Province and the Coast Province.

Alternative 1

Under alternative 1, approximately 460 acres of regeneration and overstory removal harvest would occur within OR-65. In addition, the removal of approximately 273 acres of habitat adjacent to sugar pines in the West Fork Whisky Creek sub-watershed would occur. Additional adverse effects are expected by the proposed 634 acres of commercial thinning in OR-65, which would degrade Critical Habitat to less than the 60 percent canopy closure considered to be necessary for nesting, roosting, or foraging by northern spotted owls in portions of these units. With respect to habitat degradation from thinning treatments, it is not possible, given the variability both on the landscape and in the prescriptions, which are combinations of commercial thins and pre-commercial thins, and commercial density management and non-commercial density management, to determine the precise amount of habitat which would be degraded below the 60 percent canopy closure suitability threshold. For the purposes of analysis, a worst case scenario has been assumed in which all 634 acres are degraded below suitable condition, but the expected result would most likely be at least one-half of the acres involved would still be in a suitable condition post-harvest.

The 460 acres of proposed regeneration harvest treatments, 273 acres of habitat removed around sugar pines in the West Fork Whisky Creek subwatershed, 18 acres removed by road construction and 634 acres of proposed commercial/non-commercial thinning in OR-65 would result in a lowered quality and quantity of suitable habitat. Under the worst case scenario of alternative 1, the treatments in CHU#OR-65 would affect approximately 1,385 acres or about 2 percent, of the 74,664 acres within this CHU. In CHU#OR-67 approximately 18 acres out of the 98,238 acres within this CHU would be affected. Therefore, the effects of these proposed treatments would not be severe enough to constitute adverse modification because the values of Critical Habitat would not be appreciably reduced for the survival and recovery of the species. Fuels treatments would reduce the risk of stand-replacement wildfire in northern spotted owl Critical Habitat

Alternative 2

Project activities would affect 1,259 acres, less than 2 percent of the total CHU acreage. Under alternative 2 the 324 acres of regeneration harvest, 273 acres of habitat removed around sugar pines in the West Fork Whisky Creek subwatershed, 13

acres removed by road construction and 649 acres of commercial thins in CHU#OR-65 are expected to lower the quality and quantity of suitable habitat. Fuels treatments would reduce the risk of stand-replacement wildfire in northern spotted owl Critical Habitat

Alternative 3

Over time there would be an increased risk of wildfire through increase in stand density, increase in ladder fuels, and no planned fuels treatments in areas known to be high hazard. As fires might occur in unpredictable locations, spotted owl sites would be as much at risk as other resources.

Alternative 4

Proposed treatments around sugar pines and from commercial thins over a total of 709 acres would affect less than 1 percent of the CHU acreage. It would not be severe enough to constitute adverse modification because the function of Critical Habitat would not be appreciably reduced for the survival and recovery of the species. The 12 - 17 acres of proposed commercial/non-commercial thinning treatments in the action alternatives in OR-67 would have very minor effects on the function of this Critical Habitat unit. Fuels treatments would reduce the risk of stand-replacement wildfire in northern spotted owl Critical Habitat.

Road decommissioning in northern spotted owl Critical Habitat would add to the development of late-successional forest, and reduce the risk of predation.

4.8.2 Marbled Murrelets

4.8.2.1 Marbled Murrelet Suitable Habitat

Over 600 surveys have been conducted in the Glendale Resource Area with no detections of murrelets (USDI 2000). It seems likely that the proposed harvest of 69 acres of suitable murrelet habitat within 35 miles of the coast would have minor effects, if any. The nearest known sighting of a marbled murrelet is approximately one and one-half miles north of the northwest boundary of the watershed in the Coquille River watershed in the Siskiyou National Forest. Suitable habitat for marbled murrelets includes old growth and mature

coniferous forest up to 50 miles from the coast with Marbled Murrelet Critical Habitat identified within 35 miles from the coast (USDI 1996).

Alternative 1

Alternative 1 would have negligible effects on suitable marbled murrelet habitat through direct removal of 628 acres of suitable habitat and degradation of 692 acres of commercial thinning. Treatments under this alternative, including regeneration and overstory removal units 28-A, 33-1, 33-2, 33-A, and 4-1 would comprise 69 acres of suitable habitat which would be removed within the General Forest Management Area (GFMA) within 35 miles of the coast. Because this area is the part of the planning area most likely to be occupied, proposed regeneration harvest could potentially reduce opportunities for nesting.

Road decommissioning in marbled murrelet habitat within 35 miles of the coast under the action alternatives would benefit marbled murrelets in the long-term by accelerating the growth of late-successional forest and reducing the amount of edge habitat which both fragments the forest and provides additional opportunities for murrelet predators (USDI 1997).

The fuel treatments proposed under the action alternatives would reduce density levels, decrease ladder fuels, and generally serve to reduce the risk of stand replacement fires in suitable marbled murrelet habitat.

Alternative 2

Alternative 2 proposes 10 acres of regeneration harvest within 35 miles of the coast and would adversely affect this small amount of suitable marbled murrelet habitat. Impacts to Units #12-2, and #35-4 would be similar to those described in alternative 1. The 355 acres of regeneration harvest and 697 acres of commercial thins would occur within the suitable habitat range up to 50 miles from the coast, thus reducing the quality and quantity of suitable habitat. Road decommissioning and fuels treatment effects would be similar to those in alternative 1.

Alternative 3

Alternative 3, the no action alternative, would result in some minor beneficial effects in maintaining and not increasing the current level of forest fragmentation.

Alternative 4

The 853 acres of commercial thins would occur within the suitable habitat range up to 50 miles from the coast, of the marbled murrelet, thus reducing the quality and quantity of suitable habitat. Road decommissioning and fuels treatment effects would be similar to those in alternative 1.

4.8.2.2 Marbled Murrelet Critical Habitat

The action alternatives would not remove or degrade any Marbled Murrelet Critical Habitat. Unit # 35-4 is the only proposed commercial unit within critical habitat, and the prescription for thinning in these units specifies retention of 60 percent canopy closure.

The proposed fuels treatments in the action alternatives would reduce the risk of catastrophic wildfire throughout the analysis area, and thereby provide increased protection for Critical Habitat. There are a total of 284 acres of proposed underburns, and 175 acres of slashing, hand-piling, and burning proposed within Marbled Murrelet Critical Habitat. It is expected these treatments will reduce the risk of stand-replacement wildfire, and therefore reduce risk of large-scale loss of suitable murrelet Critical Habitat, by reducing vertical fuel ladders, overstocking, and brush.

The approximately 15 miles of road decommissioning in marbled murrelet Critical Habitat would benefit marbled murrelets in the long-term by accelerating the growth of late-successional forest in marbled murrelet Critical Habitat.

It is important to reemphasize that while the effects analysis presented here was performed by examining effects to suitable habitat, over 600 surveys in the vicinity of the project area (USDI 2000) have resulted in no detections of murrelets. Therefore, the analysis is a “worst case scenario”, and actual impacts to the recovery of marbled murrelet Critical Habitat would be very small with any of the alternatives.

4.8.3 Bald Eagles

The three action alternatives would limit activities near the active bald eagle nest site in the vicinity of Alder Creek, consistent with RMP guidelines (USDI 1995), which include retaining at least 50 percent forest canopy closure, and large trees and snags in

units within 1 mile of the nest, which would affect units #27-1A, 27-1B, and 28-1B. By meeting these guidelines, none of the alternatives would have adverse effects on bald eagles.

4.8.4 Fisheries

The planning area supports Southern Oregon coho salmon, a federally threatened fish species, but the proposed actions in the action alternatives are not expected to have more than a minimal effect on any fish population or fish habitat. All proposals are consistent with the Aquatic Conservation Strategy (ACS) to avoid any substantial degradation of fish habitat or adverse impacts on water quality. Very little road construction is proposed in any alternative and would not involve any major stream crossing nor be located near streams. Only very limited vegetation treatments are proposed in any of the Riparian Reserves. The project would not hinder or prevent attainment of ACS objectives at the 5th field watershed scale in the long term (Appendix 11). The proposed actions would maintain all factors in the National Marine Fisheries (NMFS) Matrix of Pathway Indicators at the project and watershed scales. It also meets terms and conditions of the NMFS LRMP/RMP Biological Opinion of March 18, 1997. When the effects of the proposed actions in each of the alternatives are added to the environmental baseline and cumulative effects elsewhere in this 5th field watershed, the likelihood of resulting adverse effects on or incidental “take” of southern Oregon/northern California coho salmon or its critical habitat is negligible. Nor would there be any adverse effects to Essential Fish Habitat (Magnuson-Stevens Act).

4.9 Timber Management

4.9.1 Acres Available for Timber Production

In the RMP, lands in the EIS area were assigned land use allocations in order to meet both short and long term land management objectives. The allocations within the EIS area are primarily LSR, Riparian Reserves, Congressional Reserves, and Matrix. Matrix lands include General Forest Management Lands and Connectivity Blocks. While Matrix lands have as primary objective the

production of a sustainable amount of timber, they have other objectives such as contributing to connectivity across the landscape.

Within the Matrix there are other lands that are also not allocated to planned timber harvest. These other lands include: lands of very low productivity; lands which are not forested, such as rock outcrops and roads, and lands that may have slope instability as a result of their steepness. As a result, lands that have the broad classification of Matrix are not entirely available for planned timber harvest. Available acres are those that have been modeled for and are managed for long-term sustainable timber production (Map 13). Table 4-10 depicts the gross Matrix acreage and the net acreage available for timber harvest. The Medford District BLM has 589,929 gross acres of Matrix of which only 190,995 are available for planned timber harvest

Alternative 1 would allow access to the full Matrix acreage available for planned timber harvest that is currently available under the RMP. Under alternatives 2 and 4, the creation of the East Fork Whisky Creek ACEC would restrict timber harvest, with an anticipated decrease in available volume of approximately 140,000 board feet under alternative 2 and 325,000 board feet under alternative 4. This is a relatively minor amount, and would not affect the Medford District's Annual Sale Quantity (ASQ).

4.9.2 Timber Production

Each of the action alternatives propose treatments that would result in logs being made available for local economies. Some treatments have as their objective the production of timber. These treatments would immediately result in logs being removed from the site to mills for processing. These treatments would also help to regulate natural stands through placing the stands in a condition where there would be higher degree of predictability in future growth and yield. These treatments would occur on available Matrix acres. Volume produced from these Matrix acres would be attributable to the District's PSQ. Other treatments have different objectives, including: increase in growth rates so that large structural elements (standing trees, snags, coarse woody debris) would develop faster; creation of desired stand characteristics and structure; improvement of tree vigor; and removal of ladder fuels. These treatments would generally occur within reserves. Logs produced from reserves would be considered a by-product of the treatment and would not be counted toward the PSQ. Table 4-11 depicts the

estimated merchantable volume that would be produced under each of the alternatives and the amounts that may or may not be attributed towards the PSQ under the four alternatives .

Of the action alternatives, the volume attributable to the PSQ would be greatest in alternative 1 (12,147 MBF) and least in alternative 4 (4,043 MBF). The amount of volume not attributable to the PSQ would be essentially the same. The total volume resulting from the action alternatives would be greatest in alternative 1 (12,930 MBF) and least in alternative 4 (4,811 MBF). The no action alternative would result in no volume being produced.

While the volume produced from these proposals would differ in the short term under each of the alternatives, the volume produced from the net available acres over the long term, assuming current standards and guidelines, would be approximately the same for alternative 1 and alternative 3, the no action alternative, as there would be no proposed deviations from the RMP in the acreage available for planned harvest or in the management of those lands. Timing of harvest treatments is the only major variable between these two alternatives. If there were any differences at all, alternative 1 would produce slightly higher volumes over the long term than the No Action Alternative, as older slower growing stands would be replaced by faster growing young stands through regeneration harvests and growth rates of retained trees within commercial thins and density management units would increase as a result of those treatments. Long-term, implementation of alternatives 2 or 4 would result in a minor decrease in volume produced when compared to the other alternatives primarily because of the decrease in the net available Matrix lands caused by the creation of an ACEC in alternatives 2 and 4.

4.9.3 Roads/Transportation System

Alternatives that build roads and maintain transportation systems in a drivable condition aid timber stand management work. While the RMP makes similar basic reforestation and stand management assumptions for like units, units that are accessed directly from roads have a greater probability of meeting or exceeding those assumptions. Units accessed by roads are likely to receive more effective site preparation after timber harvest. This is particularly true if the road serves as the holding line when the site preparation is done

by broadcast burning. Initial tree planting would be about the same whether a unit has road access or not. The results of replanting, if needed, would also be about the same. Interplanting to bring marginally stocked units to target levels would, however, be less likely to occur. Follow-up treatments on units accessed by road are also likely to be more timely and effective than on units requiring a walk-in. Costs associated with forest development work done within units are less for units that crews can drive to than for those that require lengthy walk-ins. There is also better and more frequent monitoring (surveys) when units are along roads. Alternative 1 would provide for building and maintaining the greatest amount of road followed by Alternative 2 (Table 4-11).

Alternative 1 proposes construction of permanent roads to regeneration harvest units 1-1 and 6-4. In Alternative 2, the road to unit 6-4 is temporary and would not be drivable after site preparation was completed. The access to unit 1-1 in Alternative 2 is by foot. In Alternative 4, units 1-1 and 6-4 are deferred so the roads are not proposed. Construction of a road to unit 1-1 would allow broadcast burning to be used to site preparation in Alternative 1. Broadcast burning of unit 1-1 would not be a viable option in Alternative 2 because of the difficulty in holding the burn to within unit boundaries. Hand piling and burning of piles is therefore proposed for site preparation in Alternative 2. While hand piling would reduce fuels and create openings for planting, a broadcast burn would create more open area, would be more effective in reducing fuels, and would accomplish a much greater degree of initial control of competing vegetation. Permanent road access in Alternative 1 to units 1-1 and 6-4 would also facilitate monitoring of unit conditions and would permit forest development treatments to be completed at less cost than if a walk-in to the unit were required, as would occur in Alternative 2. Permanent access to units 1-1 and 6-4 would also allow greater access to stands which are along the roads. Future stand management actions including harvest within these stands would be facilitated.

Whereas road building and maintenance aids timber management on a stand by stand basis, decommissioning roads that are no longer needed for access is positive from an overall timber management standpoint as acres are returned to timber production. Existing roads proposed for decommissioning under any of the alternatives do not limit unit access. Alternative 4 would decommission the greatest length of road followed by Alternative 2, 1 and the No Action. Table 4-11

depicts the miles of road maintenance, miles of temporary and permanent road construction, and miles of road proposed for decommissioning.

4.9.4 Harvest Method

The harvest method used may influence the future management of units that receive regeneration harvest (RH) and overstory removal (OR) treatments. The alternatives propose varying amounts of cable, tractor, and helicopter yarding on regeneration harvest, overstory removal, commercial thinning, and density management harvest units. Harvest methods were based on a consideration of objectives for the land use allocation and alternative, stand conditions, site conditions and to some extent economics.

Cable yarding with partial suspension creates more surface disturbance than helicopter yarding because logs are pulled across the unit during yarding. Vegetation is broken and uprooted. Less cutting of undesirable vegetation is needed for site preparation. Disturbed vegetation dries more thoroughly than intact vegetation and therefore tends to burn more completely during site preparation. Cable corridors are cleared of vegetation and slash. Roads that give access to the yarder facilitate broadcast burning for site preparation. Tractor yarding of units produce some of the same conditions. Helicopter yarding of units does not produce the disturbance that cable yarding does. In overstory removal units, especially those where the existing conifer understory is greater than two to three feet tall, surface disturbance is generally not beneficial to retaining the conifer understory. For both types of units how well initial plantings, interplantings or existing regeneration grow determine how much additional money must be spent to achieve target stocking levels. The better the site preparation generally the more successful the initial planting will be and the greater amount of control of competing vegetation. The degree to which initial planting succeeds and how much initial vegetation there is contribute greatly to future treatments. The more successful the initial planting and initial control of competing vegetation are, the fewer treatments are needed to reforest. Table 4-13 depicts the variation of yarding methods and treatment types by alternative.

Although there are some differences in how the various harvest treatments are accomplished, the only treatment types where there is much of a difference between the alternatives percentage wise is for regeneration harvests and overstory removals.

The proposed yarding method in alternative 1 is entirely cable and tractor. Under alternative 2 there would be a shift to the use of helicopters. In alternative 2 there are also fewer acres proposed for regeneration harvest or overstory removal. This would account for a major portion of the percentage change between harvest method type. Because of the lack of disturbance from the yarding process that is proposed for units under alternative 2 per acre reforestation costs would tend to be higher than in Alternative 1. Alternative 4 does not have regeneration cuts or overstory removals. Harvest method type is essentially consistent for Commercial Thin, Commercial Density Management, and the Pine Enhancement/Maintenance Treatments.

Unit layout is also a contributor to how timber stands are managed in the future. How unit boundaries are situated on the ground often determines how adjacent units will be yarded, what type of site preparation will be done, and in some cases even whether or not adjacent units will be harvested. From the standpoint of leaving manageable units for the future and not reducing management options Alternatives 1, 3, and 4 are equal. Alternative 2 is the only alternative that reduces management options on GFMA acres because of a unit's shape. Unit 13-1 is reduced in size for wildlife reasons in Alternative 2. Only the upper portion of the unit that is proposed for a regeneration harvest in Alternative 1 is proposed for a regeneration harvest in Alternative 2. Harvesting only the upper portion of the unit has the effect of almost entirely eliminating the cable yarding and broadcast burning options for the lower part of the unit at a future date as there would be a young stand above the unit that would be put at risk from those treatments.

4.9.5 Forest Health and other Non-Timber objective treatments

All action alternatives propose treatments designed to achieve non-timber objectives such as improving stand vigor, increasing tree resistance to insects and disease, increasing growth rates so that large structure develops more rapidly, reducing ladder fuels, and opening the forest canopy so that the danger of running crown fires is reduced. Table 4-14 depicts the acreage proposed by alternative of treatments designed to increase vigor, increase rates of growth, and achieve fire/fuels objectives where a commercial product (CDM, CDM/NDM)

would result. The table does not include proposed fire/fuels treatments where no commercial product would result. These non-commercial treatments are described in the fire/fuels section of the document.

All the action alternatives propose to treat a very similar acreage. The action alternatives propose to accomplish an equal number of acres of non-commercial density management treatments and an equal number of acres treated to convert the pine stand resulting from the Quail Creek Fire to a stand dominated by Douglas-fir.

In Alternative 4, Unit 35-4 (a 1-acre unit surrounding a very large Douglas-fir referred to as the "ugly tree") would not receive a commercial density management treatment but would receive a fuels treatment. The objective is to protect this unique tree by reducing the potential for wildfire to get into the crown.

Alternative 4 proposes to treat a slightly larger number of acres (14) with a treatment designed to enhance the vigor of large pines so that they can be maintained in the ecosystem. The difference in acres is the result of how Unit 4-2 would be treated. In Alternative 1 the unit would receive a regeneration harvest. In Alternative 2, where there is an emphasis on maintaining SW-NE connectivity, the unit would receive a commercial thin. In Alternative 4 the unit would receive the pine enhancement/maintenance treatment, that is specifically designed as a forest health treatment. Treatments in Alternatives 1 and 2 are designed to produce commercial products.

All action alternatives propose to treat an equal number of acres at Quail Creek. The objective of the treatment would be to shift species dominance within the young stand from the ponderosa pine that was planted after the Quail Creek Fire to Douglas-fir so that the area which is LSR would more closely resemble nearby natural stands. All acres would not be treated at the same time.

Commercial thinning, although not designed solely for forest health or other non-timber objectives, many of the same benefits would result, with competing trees being removed from stands and remaining trees then receiving more light, nutrients, and water. Alternative 2 has the greatest number of acres proposed for commercial thinning (969 acres) followed by alternative 4 (955 acres) and alternative 1 (871 acres).

The action alternatives all propose to treat a small number of riparian reserve acres that are

associated with harvest units. The objective of these treatments would be to enhance the development of conifer understory or to create conditions so that a conifer understory can be established. Alternative 1 proposes the greatest amount of these treatments (64 acres) followed by alternative 2 (38 acres) and alternative 4 (10 acres).

Alternative 3 does not propose any of the forest health treatments. There would be a continuation of the slower growth in overstocked stands and in stands where there was a component of pines there would be a continued shift to a stand of Douglas-fir and hardwoods as the pine was suppressed from the stand. The riparian reserves proposed for treatment within the action alternatives would not be treated.

4.10 Roads/Transportation System

None of the proposed alternatives would greatly affect the transportation system. Only 1.7 miles of new permanent road would be constructed in Alternative 1, which represents only a 0.4 percent increase in the road miles in the planning area. The temporary roads represent short spurs to reach landings and would not be part of the long-term transportation system.

Similarly, the proposed road decommissioning and closures through gates and barricades would have only minimal effects on the road system, since most roads to be closed are short, dead-end spurs. The largest impact to the transportation system would come from the proposed gates and barricades on the Dutch Henry road system (road #32-7-19.3). This system of closures would remove public vehicle access to approximately nine miles of roads. This road system does provide access to private lands above the Rogue River and that access would not be altered; the land owners would continue to have access to their lands through the gates.

The action alternatives would provide a way to complete past-due (deferred) road maintenance work. Examples of deferred maintenance includes culvert cleaning, culvert replacement, road surface conditioning, surface replacement and roadside brushing. Closures would reduce rutting and scouring of natural surfaced roads, and reduce impacts caused by human presence. Some

activities such as hunting, recreation, rock hounding, casual touring, and mushroom hunting would be slightly affected.

Alternative 3, the No Action Alternative would have a negative effect on the transportation system within the EIS area. Local spur roads would continue to degrade from lack of adequate road maintenance. Improvement of drainage patterns on improperly designed subgrades would not be accomplished. Diminishing surface rock and rusting culverts would not be replaced. Roads would become more choked with growing vegetation, eventually preventing access for checking current and deferred road maintenance needs and impairing fire suppression efforts. Drainage patterns on local roads would become impaired by movement of slough and road embankment material. The likelihood of surface erosion and road or fill failures to occur would increase due to postponing of deferred maintenance needs in the area.

4.11 Undeveloped Areas

Currently undeveloped areas would receive negligible impacts from the actions proposed under alternative 1 with a slight increase in new road construction and improvement of jeep roads in the planning area. Units 1-1 and 6-4 would occur in undeveloped areas. The impacts would be minimal in nature and would consist of slight increases in ambient sound levels (road traffic, land treatment actions) which slightly increases cultural influence on lands generally unaffected by man. These impacts are minor and would be problematic to accurately detect.

None of the alternatives foreclose any management options considered reasonable for the stewardship of undeveloped parcels. The integrity of these lands, from the perspective of the appreciation of undeveloped ecosystems, would remain largely intact.

4.12 Social Environment

This section represents numerous aspects of the human social environment, with regard to use of or impact from use of public lands.

4.12.1 Rural Interface

Private parcels within the planning area range in size from about 20 to more than 300 acres. Most of these are clustered near Marial, west of Kelsey Creek. Exceptions are mining claims in the Whisky Creek drainage, Black Bar Lodge and two parcels in the Meadow Creek Drainage. Many of the private parcels within the planning area are actively managed for timber or mineral extraction with entries occurring within the last 5 years.

Major issues related to rural interface management within the planning area would likely be those identified in the RMP as creating the greatest impact on interface areas, including: fire and fuels management and related effects such as smoke, visual resource management and protection of views from within residences in the area, short- and possibly long-term increased noise levels, and dust and other problems associated with increased vehicular traffic.

Recreational use, timber harvest, Special Forest Products, vegetative treatments, and road construction/decommissioning actions will continue to provide employment and income at levels comparable to recent years. Underlying regional and national economic and population trends will be the primary determinants of regional employment, income, population, and poverty.

Payments in Lieu of Taxes and payments under the Secure Rural Schools and Community Self-determination Act of 2000 (P.L. 106-393) would be unaffected by any of the proposals.

As a result of the effects analysis throughout this document, it appears that there would be no economic effects from any of the proposals that would be different from those analyzed in the RMP/EIS.

4.12.2 Recreation

All alternatives would present little or no impact on existing recreation uses within the area. Road decommissioning actions and cessation of road maintenance on selected routes would slightly diminish recreational access. This reduction in access is minimal. Recreation use in the planning area is focused and concentrated within the boundaries of the Rogue National Wild and Scenic River. No recreational activities occurring within the

river corridor would be affected by any of the alternatives. Neither the Grave Creek to Marial or Galice-Hellgate National Back County Byways would be adversely affected by any of the alternatives. Dispersed recreation activities which occur along the other existing roads and those activities in unroaded areas within the planning area would not be affected by any of the alternatives.

4.13 Visual

None of the alternatives would affect the available scenic resource as viewed from the Rogue National Wild and Scenic River corridor. Areas viewed from locations along roads or other access points would not be adversely affected and would meet appropriate VRM objectives for those lands (Map 14). Key observation points for the planning area are within the Congressionally designated boundaries of the Rogue National Wild and scenic River. These are specifically located on various portions of the river surface and the Rogue River National Recreation trail. Available views of the planning area from these observation points are predominantly in the foreground to near middle ground zone (0 - 2 mi.). These zones fall within existing Visual Resource Management (VRM) Class II designations as described in the RMP. This classification provides for retention of the existing character of the landscape and the implementation of project design features that do not attract the attention of the casual observer viewing from key observation points.

4.14 Population and Economics

There would be very little change in the net Matrix lands available for commercial timber management (Table 4-10). The proposed timber harvest and other vegetation treatments fully comply with the RMP direction. Commercial harvest would continue in the future in accordance with the standards and guidelines in the RMP and the Northwest Forest Plan. Special Forest Products are not a major economic resource in this area because of the remote nature of the Planning area. And the vegetation treatments and road proposals would not alter accessibility or productivity of any Special Forest Product. As a result, there would be no economic impacts different from those already analyzed in the RMP/EIS associated with timber harvest or other vegetation treatments.

Similarly, there would be no substantial economic effects of the land use allocation changes. Recreation would not be hindered or encouraged by the designation of an ACEC. The road proposals would also not increase or reduce visitation since the construction and decommissioning would all involve short, dead end spurs. Paving some of the major roads may make driving them safer, but this area is a very remote and isolated area and it does not appear that this minor improvement in short stretches of some of the arterial roads would result in increase use.

As a result of the effects analysis throughout this document, it appears that there would be no economic effect from any of the proposals that would be different from those analyzed in the RMP/ EIS.

4.15 Minority and Low Income Populations (Environmental Justice)

Environmental justice is a movement promoting the fair treatment of people of all races, income, and culture with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. The Glendale Resource Area recognizes the concerns for environmental effects, including human health, economic and social effects, of its actions, including their effects on minority communities and low-income communities, as required by the National Environmental Policy Act (NEPA). There are no minority communities or low income communities within or nearby the Kelsey Whisky PA.

4.16 Cultural

The impacts of alternatives 1, 2 and 4 are generally the same to cultural resource sites. In a few instances, alternative 4 defers the action or has no commercial density management. In two cases alternative 2 and 4 are the same, while alternative 1 has commercial density management with cable and tractor. Alternative 3 (no action) would increase protection of the sites due to the probability of less

looting and no impacts from timber management or fuels treatment. However alternative 3 could increase the risks to the wooden component of the sites by not reducing fuels, from around the site and the landscape. If there were a wild fire the chances of a site burning would be greater without fuels reduction treatments.

The possibly of looting of sites in timber management areas could be increased by people working to harvest the timber, replant trees and other activities. Looting can impact a site by removing bits and pieces of the resource for ever. This could happen equally under each of the action alternatives.

The impacts of fuels treatment would be mitigated through different measures depending on the prescription. Fire behavior of the prescribed burn within the management area can vary throughout the landscape, and therefore the possible impacts on the cultural resource site could be different, depending on where the site is located. Site conditions after commercial harvest would help to determine the exact fuels treatment, but at a minimum the mitigating recommendations below would be followed.

Possible methods of mitigating the impact of fuels treatment on cultural resource sites include:

- Putting a fire line around the site - a distance to be determined in the field, but no less than 25 feet from the boundary.
- Pulling back the fuels from structures, artifacts and sites.
- Put hand piles off of trails
- Have equipment cross trails perpendicularly and where the trail is in the poorest shape.
- Changing the boundary of the fire unit to exclude the cultural resource site.
- Change a part of the fire prescription to further buffer the site - for example hand pile and burn a minimum of 25 feet away from the structures within a site, and then the prescribed fuels treatment. This could lessen the fuel load near the cultural resource site and offer the site more protection.

The effects of fire on can dumps, stones, and trails would be minimal Under all fire prescriptions the goal is to protect the cultural resource site. However, due to the nature of fire and possible changing conditions during a burn, a burn could escape the intent of the prescription. If this were to happen, wooden sites and artifacts could very possibly be harmed or destroyed. .

4.17 Native American Religious Concerns

There are no areas within the Kelsey-Whisky EIS Planning area that are known to be currently important as Native American religious sites or are in use for traditional purposes at this time.

4.18 Areas of Critical Environmental Concern and Wild and Scenic Rivers

There are currently no Areas of Critical Environmental Concern (ACEC) or Research Natural Areas (RNA) in the planning area. The Bobby Creek ACEC/RNA is adjacent to the planning area, on the north boundary. It is in a different watershed and would not be affected by any of the proposed alternatives.

Alternatives 2 and 4 include proposals for designating an ACEC in the East Fork Whisky Creek subwatershed. The proposed management plan (Appendix 10) includes details of the area and the proposed management direction. Both alternatives would protect a plant group that is not currently represented in the Oregon Natural Heritage system. Under alternative 3, the no-action alternative, scheduled timber harvest would continue in and around the area as planned for in the Medford District Resource Management Plan. Should regeneration harvest ever occur along the border of the proposed ACEC, windthrow to border trees, temperature increases, and light increases could be anticipated with the potential to disrupt the localized ecological processes as described in Chapter 3. Road construction for bordering timber activities would create further access to the area along with the potential to introduce non-native vegetation, including noxious weeds.

There are no proposals on the south side of the Rogue River, so there would be no effect on the streams found to be suitable for Wild and Scenic River status there. There also would be no effect

on the Wild and Scenic Rogue River, since all proposed treatments would conform to the VRM standards and other restrictions called for in managing Wild and Scenic Rivers.

The Rogue River is the only river currently designated under the Wild and Scenic Rivers Act of 1968. None of the alternatives would affect the Outstandingly Remarkable Values (ORV's) which led to the Rogue's inclusion within the Wild and Scenic Rivers System.

The RMP recognizes four creeks (Big Windy, East Fork Windy, Dulog and Howard) as suitable for potential designation as Wild and Scenic "Rivers." They are all located on the lands south of the Rogue River corridor and are presently under interim management guidelines that protect and preserve their inherent resource values. None of the alternatives would affect these creeks.

4.19 Wilderness

The existing Wild Rogue Wilderness would remain unaffected by any of the alternatives.

4.20 Air Quality

The Clean Air Act requires each state to develop and implement a State Implementation Plan (SIP) to ensure that National Ambient Air Quality Standards are attained and maintained for particulate matter (PM₁₀). Within the implementation plan developed for Oregon, a goal to reduce particulate matter emissions (PM₁₀) by 50 percent by the year 2000 was established. PM₁₀ was also identified by the State Implementation Plan as the basis for non-attainment within the Grants Pass and Ashland/Medford area.

The planning area is approximately 30 miles from the Grants Pass non-attainment area and over 50 miles from the Medford/Ashland non-attainment area. Due to the distance involved, it is expected that prescribed fire operations will have little to no effect on these non-attainment areas.

The planning area is adjacent to only a small number of smoke sensitive areas. Since the Kalmiopsis and Rogue Wilderness areas are directly west of the planning area, the prevailing winds would prevent smoke intrusions. Intrusions into the Ranch, river corridor, Rand and Galice may

occur if nighttime inversions cause smoke drainage into these areas. Due to the combination of the prevailing winds and the complex terrain, intrusions into the Cow Creek drainage are not likely.

One way to prevent smoke intrusions is to space burn units out so that they are treated at different times of the year. Broadcast and underburning would generally occur in the spring. Pile burning would occur in the winter and would not produce enough smoke to cause intrusions into any smoke sensitive area.

An analysis of PM-10 and PM-2.5 emissions from fuels treatments throughout the planning area by prescribed fire treatment type was performed using the CONSUME fire behavior modeling computer software package. CONSUME (version 2.1) was developed by the Fire and Environmental Research Applications team, USDA Forest Service, Pacific Northwest Research Station. Fuel loadings, expressed in tons per acres, were entered into CONSUME as were weather and fuel moisture conditions typical of the season in which the various types of burning would occur. Based on these inputs, CONSUME calculates particulate emissions. Computer simulations were completed for each type of prescribed fire activity using appropriate fuel loadings and burn conditions. The predicted emissions were multiplied by the amount of acres proposed for each alternative to arrive at a total predicted emissions (measured in tons).

Table 4-15 displays the expected tons of emissions amount of particulate matter (size categories PM-10 and PM-2.5) produced from burning under the alternatives. PM-10 is the current national ambient air quality standard against which prescribed fire activities are measured. PM-2.5 emission standards are new and provide a more restrictive air quality standard. Both PM-10 and PM-2.5 emissions have been modeled although PM-10 emissions will be the numbers referred to for this analysis. Of the action alternatives, alternative 4 would produce the least amount of PM-10 emissions while alternative 1 would produce the most.

It's important to note, however, that the emissions shown in Table 4-15 are totaled for all the acres in all the stands proposed to be treated. Treatments, in actuality, would not occur at the same time and place, but over a period of several years, with several burn days in any one year. In addition, the exact locations of the burning would be dispersed throughout the planning area which would also

reduce potential for concentrated local impacts. The net result is that the emissions over any one period of time would be considerably less than those shown in Table 4-15. The figures do, however, represent a valid estimate of the cumulative emissions to be produced under the proposals.

Under all proposed alternatives, prescribed burning would comply with the guidelines established by the Oregon Smoke Management Plan (OSMP) and the Visibility Protection Plan. Prescribed burning under all alternatives is not expected to effect visibility within the Crater Lake National Park and neighboring wilderness smoke sensitive Class I areas (Kalmiopsis and Wild Rogue Wilderness) during the visibility protection period (July 1 to September 15). Prescribed burning is not routinely conducted during this period primarily due to the risk of an escape wildfire.

Prescribed burning emissions, under all alternatives, is not expected to adversely effect annual PM10 attainment within the Grants Pass and Medford/Ashland non-attainment areas. Any smoke intrusions into these areas from prescribed burning are anticipated to be light and of short duration.

Prescribed burning would be scheduled primarily during the period starting in January and ending in June. This treatment period minimizes the amount of smoke emissions by burning when duff and dead woody fuel have the highest moisture content, which reduces the amount of material actually burned. Broadcast burning, handpile burning, and underburning would also be planned during the winter and spring months to reduce damage to the site from high intensity burning and to facilitate control of the units being burned.

The greatest potential for smoke intrusions into the non-attainment areas would come from underburning activities. Current avoidance strategies for prescribed fire assumes that smoke can be lifted from the project site and dispersed and diluted by transport winds. However, underburning requires a low intensity burn that would not have the energy to lift the smoke away from the project site. Smoke retained on site could be transported into portions of non-attainment areas if it is not dispersed and diluted by anticipated weather conditions. Localized concentration of smoke in rural areas away from non-attainment areas may continue to occur during prescribed burning operations.

4.21 Non-Native and Invasive Species

The Rogue North and South Watershed analysis documents both indicated that there are both invasive plants and animals known to exist in the watershed. Management plans exist for control of noxious weeds and spread of Port Orford root rot. The alternatives presented in this document would not stop or interfere with the management plans. No alternative would cause further introduction or spread of nonnative species. Regeneration harvest in alternatives 1 and 2 may provide open area after site preparation that would allow wind-borne species such as thistle and tansy to become established. Within five years those plants that became established would be shaded out by brush and tree species adapted to the site. There is less of a concern for underburn areas and commercial thinning areas because of shading and the limited bare soil areas exposed. Soil disturbance through decommissioning and road renovation would provide bare soil areas for potential spread of weeds. Best management practices would be in place for stabilizing disturbed areas involved in decommissioning and new road construction whether temporary or permanent.

4.22 Hazardous and Solid Wastes

No dump sites or other areas posing hazardous or solid waste problems are known to occur within the planning area.

4.23 Irreversible and Irretrievable Commitment of Resources

Irreversible commitment of resources refers to those that cannot be reversed except, perhaps, in the extreme long term. Irretrievable commitment of resources are those that are lost for a period of time.

Because many of the fuels and vegetation characteristics of the planning area are dynamic in nature and will continue to change and develop regardless of specific management actions, no irreversible commitment of resources is anticipated. The overall integrity of the area and its ecological and aesthetic values would be retained under all alternatives.

Road construction, for either temporary or permanent roads, directly impacts late-successional habitat, but would result in a relatively small irretrievable commitment of resources compared to the size of the area treated. Road construction, even for temporary roads, would have a long-term effect on the capability of that piece of ground to produce late-successional habitat. Similarly, regeneration or overstory removal harvest would constitute an irretrievable commitment of the late-successional habitat resource. Over the following 80 years or so, late-successional habitat conditions may be reestablished, given the typical harvest rotation. A lesser time would be required to make the area usable to many species inhabiting or utilizing adjacent late-successional habitat.

4.24 Cumulative Impacts

Late-successional habitat would be affected in several ways. Past timber harvest from the Trapper's Trap timber sale in the subwatershed adjoining the North Fork Kelsey Creek subwatershed has left only 39 percent of the habitat in a late-successional condition. Connectivity for species movement through the Kelsey Creek area is therefore generally more difficult in this vicinity.

There have been past timber harvests on federal lands in the Upper Kelsey Creek and Long Gulch subwatersheds, along with both federal and private timber harvest in the Mule Creek subwatershed, which have reduced the quality and quantity of late-successional habitat in the analysis area (USDI 1999). Road construction to support past timber harvest has resulted in relatively high road densities in the three areas mentioned above, but low road densities in other parts of the planning area. The road proposals in the action alternatives would contribute only a minor addition to the impacts on late-successional habitat, but would provide access for future timber harvest.

The proposed fuels treatments provide the opportunity to reduce the future risk to late-successional habitat from catastrophic wildfires. This would be the first time such landscape level fuels treatments are implemented in this planning area. The cumulative effect on late-successional habitat would be relatively minor, but the actions would contribute to long-term maintenance of older late-successional habitat in the watershed and would reduce the future risk to late-successional habitat from catastrophic wildfires.

Based on the current trend, future wildfire occurrence may be more intense fires than that have occurred in the past. The levels of fuel loading and lack of access to large portions of this watershed are major factors which would determine how large a fire would grow before suppression actions could be taken.

Under the action alternatives, there would be a reduction in the fire risk and hazard for the project area. With planned maintenance treatments, typically in the form of underburns, the reduced fire hazard resulting from fuels treatments would be maintained for approximately 10-15 years. If maintenance treatments were to cease throughout the project area, a gradual return to current levels of fire hazard could be anticipated over a period of 25 to 30 years. The fire hazard increase would be due, in part, also, to fire suppression activities. Harvesting and burning the logging slash would also temporarily reduce the overall potential for crown fires.

Precommercial thinning treatments that might be expected to occur in the future (not associated with this action) could be expected to increase fire hazard if the slash were not treated. If treated, thinning would help reduce potential for stand-replacing fires. The lack of road development in portions of the planning area would continue to prevent access to areas needing fuels treatment. The continued growth of vegetation and the associated fuels accumulation would keep the fire hazard elevated, maintaining potential for uncharacteristic stand-replacing fires until these areas were treated. Limited access would also interfere with initial attack resources. This may allow wildfires to burn larger areas because of the potential for slower response times. Logging on adjacent private timberlands could be expected to increase potential for fires to spread into the planning area should logging slash not be properly treated.

Private parcels within the planning area range in size from about 20 to more than 300 acres. Most of these are clustered near Marial, west of Kelsey Creek. Exceptions are mining claims in the Whisky Creek drainage, Black Bar Lodge and two parcels in the Meadow Creek Drainage. Many of the private parcels within the planning area are actively managed for timber or mineral extraction with entries occurring within the last 5 years. Major issues related to rural interface management within the planning area would likely fire and fuels management and related effects such as smoke, visual resource management and protection of views from within residences in the area, short- and possibly long-term increased noise levels, and dust and other problems associated with increased vehicular traffic.

Table 4-1. Acres of fuels treatments in the Kelsey Whisky planning area.

Treatment	Alternative			
	1	2 Preferred	3 No-Action	4
Non-Commercial Fuels Treatments				
Slashbuster (MFT)	289	289	0	302
Manual (SL,P)	1837	1823	0	1784
Underburn (UB)	1129	1129	0	1129
subtotal	3255	3241	0	3215
Commercial Fuels Treatments				
Slashbuster (MFT)	51	51	0	51
Manual (SL,P)	1716	1751	0	1659
Underburn (UB)	457	457	0	261
Broadcast Burn (BB)	504	283	0	0
subtotal	2728	2542	0	1971
Grand Total	5983	5783	0	5186

Table 4-2. Expected changes in fire behavior following fuels treatment by alternative.

Aspect	Alternative							
	1		2 Preferred		3 No-Action		4	
	ROS	FL	ROS	FL	ROS	FL	ROS	FL
Dry South Slopes and Ridge tops	87	10	87	10	371	42	87	10
Moist North Slopes	6	2	6	2	19	8	6	2

ROS = Rate of Spread (ft/min) FL = Flame Length (ft)

Table 4-3. Acres of treatment affecting late-successional habitat in the Kelsey Whisky Planning Area.

Impacts	Alternative			
	1	2 Preferred	3 No Action	4
Loss of late-successional habitat regeneration harvest (Matrix)	628	355	0	0
Short-term degradation of late-successional habitat by commercial thin (Matrix)	871	* 969	0	* 955
Promotion of late-successional habitat by commercial density management, and non-commercial density management (LSR)	510	510	0	509

Table 4-4. Acres Impacted in the Upper East Kelsey subwatershed.

	Alternative			
	1	2 Preferred	3 No Action	4
Loss of late-successional habitat, regeneration harvest (Matrix)	349	217	0	0
Short-term degradation of late-successional habitat by commercial thin (Matrix)	24	24	0	24
Promotion of late-successional habitat by commercial density management and non-commercial density management (LSR)	30	30	0	0

Table 4-5. Acres Impacted in the Meadow Creek subwatershed.

	Alternative			
	1	2 Preferred	3 No Action	4
Loss of late-successional habitat, regeneration harvest (Matrix)	128	119	0	0
Short-term degradation of late-successional habitat by commercial thinning (Matrix)	357	357	0	357
Promotion of late-successional habitat by commercial density management and non-commercial density management (LSR)	27	27	0	27

Table 4-6. Acres impacted in the North Fork Kelsey Creek subwatershed.

	Alternative			
	1	2 Preferred	3 No Action	4
Loss of late-successional habitat from regeneration harvest (Matrix)	137	20	0	0
Short-term degradation of late-successional habitat by commercial thinning (Matrix)	301	* 385	0	* 385
Promotion of late-successional habitat by pre-commercial thin, commercial density management, and non-commercial density management (LSR)	0	0	0	0

* Canopy closure - 60%

Table 4-7. Acres of spotted owl suitable habitat in the Matrix affected by the alternatives.

Effects on Suitable Habitat	Alternative			
	1	2 Preferred	3 No Action	4
Suitable habitat removed - regeneration harvest	628	355	0	0
Suitable habitat removed - permanent road construction	6	0	0	0
Suitable habitat removed - temporary road construction	12	14	0	16
Suitable habitat removed - West Whisky pine treatment	273	273	0	273
Total suitable habitat removed	921	623	0	289
Suitable habitat degraded to dispersal habitat - commercial thinning.	1,432	697	0	853
Total suitable owl habitat loss	2,353	1,320	0	1,142

Table 4-8. Effects on spotted owl sites within their home range and adjacent to core areas .

Acres of Suitable Habitat within 1.3 miles of Activity Site (Home Range)					
	Pre-harvest Suitable	Suitable Removed	Degraded to Dispersal	Post-harvest Suitable Remaining	Acres of suitable habitat removed adjacent to 100-acre core area
Kelsey's Demise #2069 (Matrix)					
Alt 1	2,205	306	80	1,819	26
Alt 2	2,205	231	0	1,974	0
Alt 3	2,205	0	0	2,205	0
Alt 4	2,205	0	80	2,125	0
KCNA #3280 (Matrix)					
Alt 1	1,882	113	202	1,567	27
Alt 2	1,882	34	237	1,611	0
Alt 3	1,882	0	0	1,882	0
Alt 4	1,882	0	84	1,798	0
Whisky Creek #2013 (LSR)					
Alt 1	2,350	0	0	2,350	0
Alt 2	2,350	0	0	2,350	0
Alt 3	2,350	0	0	2,350	0
Alt 4	2,350	0	0	2,350	0
Small Shot #2014 (LSR)					
Alt 1	2,679	0	33	2,646	0
Alt 2	2,679	0	33	2,646	0
Alt 3	2,679	0	0	2,679	0
Alt 4	2,679	0	33	2,646	0
One 4 All #2619 (Matrix)					
Alt 1	2,619	68	0	2,551	0
Alt 2	2,619	68	0	2,551	0
Alt 3	2,619	0	0	2,619	0
Alt 4	2,619	68	0	2,551	0
Cool Springs #3282 (Matrix)					
Alt 1	2,746	54	268	2,424	0
Alt 2	2,746	18	140	2,588	0
Alt 3	2,746	0	0	2,746	0
Alt 4	2,746	0	275	2,471	0
Taylor Gulch #0881 (LSR)					
Alt 1	1,027	0	0	1,027	0
Alt 2	1,027	0	0	1,027	0
Alt 3	1,027	0	0	1,027	0
Alt 4	1,027	0	0	1,027	0

Table 4-9. Acres of spotted owl Critical Habitat in CHU #OR-65 affected by the alternatives.

Actions in Critical Habitat	Alternative			
	1	2 Preferred	3 No Action	4
Regeneration harvests	460	324	0	0
W. Fk. Whisky Cr. Pine Treatment	273	273	0	273
Permanent road construction	5	0	0	0
Temporary road construction	13	13	0	0
Total Critical Habitat removed	751	610	0	273
Total Critical Habitat degraded- Commercial Thinning	634	649	0	436
Total Acres of Critical Habitat Impacted	1,385	1,259	0	709

Table 4-10. Gross Matrix Acres and Net Matrix Acres Available for Scheduled Timber harvest* within the Kelsey Whisky Project Area by Alternative.

	Alternative			
	1	2 Preferred	3 No Action	4
		Gross Acres		
GFMA	21,899	20,599	21,899	19,475
Connectivity/ Diversity Blocks	1,258	1,258	1,258	1,258
Total Matrix	23,157	21,857	23,157	20,733
		Net Available Acres		
GFMA	9,706	9,236	9,706	8,613
Connectivity/ Diversity Blocks	502	502	502	502
Total Matrix	10,208	9,738	10,208	9,115

* - Note: all acres do not currently contain stands that fit RMP criteria for harvest

Table 4-11. Estimated Timber harvest levels (MBF)*

	Alternative			
	1	2 Preferred	3 No Action	4
Attributable to PSQ	12,147	8,715	0	4,043
Not Attributable to PSQ	773	773	0	768
Total	12,930	9,488	0	4,811

* MBF = thousand board feet

Table 4-12. Miles of Road Maintenance, Construction, and Decommissioning by alternative.

	Alternative			
	1	2 Preferred	3 No Action	4
Outsloping w/water dips	0.0	7.4	0.0	7.4
Temporary Road Construction	2.0	1.5	0.0	0.0
Permanent Road Construction	1.7	0.0	0.0	0.0
Decommissioning	10.4	10.4	0	13.8
(approx. # acres return to timber production)	(18.3)	(18.3)	(0)	(25.1)

Table 4-13. Yarding Method within Treatment Types by Alternative.

	Alternative			
	1	2 (Preferred)	3 (No Action)	4
	Acres / %	Acres / %	Acres / %	Acres / %
Regeneration Harvest				
Cable	468 / 81%	133 / 40%	0/0	0/0
Cable/Helicopter	0/0	49 / 15%	0/0	0/0
Cable/Tractor	113 / 19%	104 / 32%	0/0	0/0
Helicopter	0/0	42 / 13%	0/0	0/0
Tractor	0/0	0/0	0/0	0/0
Overstory Removal				
Cable	21 / 45%	27 / 100%	0/0	0/0
Cable/Helicopter	26 / 55%	0/0	0/0	0/0
Cable/Tractor	0/0	0/0	0/0	0/0
Helicopter	0/0	0/0	0/0	0/0
Tractor	0/0	0/0	0/0	0/0
Commercial Thin				
Cable	698 / 80%	714 / 74%	0/0	700 / 73%
Cable/Helicopter	122 / 14%	122 / 13%	0/0	122 / 13%
Cable/Tractor	51 / 6%	51 / 5%	0/0	51 / 5%
Helicopter	0/0	82 / 8%	0/0	82 / 9%
Tractor	0/0	0/0	0/0	0/0
Commercial Density Management				
Cable	103 / 31%	103 / 31%	0/0	103 / 31%
Cable/Helicopter	51 / 16%	51 / 16%	0/0	51 / 16%
Cable/Tractor	37 / 11%	37 / 11%	0/0	37 / 11%
Helicopter	137 / 42%	137 / 42%	0/0	137 / 42%
Tractor	1 / <1%	1 / <1%	0/0	1 / <1%
Pine Enhancement/Maintenance -West Whisky				
Cable	0/0	0/0	0/0	0/0
Cable/Helicopter	561 / 100%	561 / 100%	0/0	575 / 100%
Cable/Tractor	0/0	0/0	0/0	0/0
Helicopter	0/0	0/0	0/0	0/0
Tractor	0/0	0/0	0/0	0/0

Table 4-14. Acres of Forest Health and other Non-Timber Objective Vegetation Treatments.

	Alternative			
	1	2 Preferred	3 No Action	4
Commercial Density Management; Commercial Density Management/ Non- Commercial Density Management	329	329	0	328
Non-Commercial Density Management	181	181	0	181
Pine enhancement/Maintenance (West Fork Whisky Creek)	1,091	1,091	0	1,105
Conversion: Pine to Douglas-fir (Quail Creek Fire)	221	221	0	221
Total Acres of Treatment	1,822	1,822	0	1,835

Table 4-15. PM-10 and PM-2.5 emissions anticipated for the planning area by prescribed fire treatment type and alternative.

	Alternative							
	1		2		3		4	
	PM-10	PM-2.5	(Preferred) PM-10	PM-2.5	(No Action) PM-10	PM-2.5	PM-10	PM -2.5
Non-Commercial Fuels Treatments								
Pile Burning	195	169	193	168	0	0	189	164
Underburn	157	143	157	143	0	0	157	143
sub-total	352	312	350	311	0	0	346	307
Pile Burning	195	169	193	168	0	0	189	164
Underburn	157	143	157	143	0	0	157	143
sub-total	352	312	350	311	0	0	346	307
Commercial Fuels Treatments								
Pile Burning	26	22	26	23	0	0	25	22
Underburn	100	91	100	91	0	0	57	52
Broadcast Burn	124	111	69	62	0	0	0	0
sub-total	250	224	195	176	0	0	82	74
Total	602	536	545	487	0	0	428	381

Chapter 5 - Consultation and Coordination

5.1 Summary of Scoping

The National Environmental Policy Act (NEPA) ensures that environmental information is available to citizens and public officials before decisions are made and before actions are taken. It also provides a regulatory avenue for private citizens and organizations to express their opinions which may influence the proposed action. Scoping meetings are held early in the planning and decision-making process to establish effective and open communication with the public.

Scoping is an open process designed to determine the breadth of issues to be addressed in the EIS. It is intended to obtain the views of the public; state, local, and tribal governments; and other federal agencies. By involving the public through the scoping process, the proponent: develops a comprehensive list of issues, then identifies the significant issues for study, aids in the development of additional alternatives, and ensures that the draft EIS is balanced and thorough.

Scoping also assesses the level of public interest in the project and identifies the agencies, groups, and individuals likely to be most interested in the proposed project. Scoping can have a profound and positive effect on the issues to be examined within the EIS, the environmental analyses, and, ultimately, on the decision made.

The Kelsey Whiskey scoping period began with a published Notice of Intent in the Federal Register dated June 7, 1999 (Volume 64, No.108, Pg.30353). It was placed on the District web page the following week. Concurrently, a letter indicating our intent to prepare an EIS and hold scoping meetings, was distributed to local, state, federal and tribal agencies, industry and environmental organizations and the interested public. A news release and legal notices in local papers was also completed on June 10-11, 1999. Legal notice was also published on October 14, 1999 in local papers for an additional scoping meeting on October 21, 1999.

Three public scoping meetings were held to solicit public input into issues and content of the EIS. These occurred on:

June 22, 1999	Grants Pass Council Chambers	5 participants
July 20, 1999	Galice Community Hall	6 participants
October 21, 1999	Medford District Office	4 participants

Each of these meeting utilized an open house format, although occasional roundtable discussions did occur. Comments were also received by mail and internet throughout this time period. A total of 23 comment letters have been received to date.

In addition, in June 2000 a full color, fold-out flier was mailed to all parties who had requested information on the project or who had attended a meeting. This flier contained a summary of the scoping process and the comments received up to that time, as well as the concepts being considered in developing the proposed alternatives, including a set of maps showing potential land use allocation changes.

In the Notice of Intent, it was stated that written comments would be accepted until August 3, 1999, but comments have been accepted and included in the development of alternatives and analysis of effects through March, 2001.

A summary of comments includes:

- Request that BLM consider decommissioning of roads other than arterial for restoration, reduction of disease spread, reduce annual maintenance costs and recreational enhancement.
- Request that BLM continue to maintain roads utilized by recreationists and private land owners in the area.
- Request that BLM have no ground disturbing activity in LSR including timber harvesting.
- Request that the roadless area remain roadless with no ground disturbing activities such as timber sales or road construction to reduce habitat fragmentation and improve connectivity.
- Raised a concern over increasing fire potential and encouraged consideration of projects to reduce potential including limited access for suppression efforts.
- Request that no further recreational projects be located in EIS area. Have enough recreationist opportunities now. Keep access to Rogue River in area minimized.
- Request that BLM strongly consider, and do detailed analysis on No Action Alternative.
- Request that BLM inventory all roads, ways

and trails in roadless area. Also analyze entire roadless area north and south of river, not just north.

- Request that BLM again reconsider Zane Grey area as wilderness.
- Supported logging in “Zane Grey” roadless area.
- Opposed any logging in “Zane Grey” roadless area. Cites severe potential impacts to recreation and wildlife adjacent to the Wild and Scenic River.
- Request that BLM gate more roads to reduce problems of illegal activities such as marijuana growing due to remoteness of area. Also reduces problems associated with road hunters such as increased fire hazard, garbage and road damage.
- Request increased emphasis on inventorying anadromous fish streams and riparian habitat, to get an accurate picture of needs for fish species in that specific area.

One area of a shared view was the concern for increased risk from wildland fires. While most agreed that an active program to reduce this risk was warranted, there was disagreement on where and how this should be accomplished.

Another area of shared concern was the protection of the Late Successional Reserve (LSR), forest dependent ecosystems and connectivity of habitat for species dispersal. Again, how, where, and how much is necessary varied greatly among respondents. Many felt some continued active management could occur while still protecting these values, while others felt total protection of the area from any development was the only reasonable approach for maintaining these ecosystems. It was also suggested that our analysis of this issue be done considering the whole watershed on both sides of the Rogue River, not just the north side.

A large number wanted reconsideration of the “Zane Grey Area” for wilderness status. In addition there was strong support for “decommissioning” of roads and designation of large portions of the EIS area as “roadless.” There was also uniform agreement for the protection of all existing property and access rights for private landholders in the area.

A comment letter was received from the US Fish and Wildlife Service, expressing concern with the proposal to change LSR boundaries in an area where existing Critical Habitat for Marbled Murrelets would be changed from LSR to General Forest Management Area (GFMA). If this change were to be selected and implemented, some of the forest

stands within the critical habitat could potentially be subject to commercial timber harvest. The interdisciplinary team has been discussing this and a thorough analysis of this issue is presented in the Draft EIS.

With the proposal to change land use allocations in some of the alternatives, it is possible that an amendment to the Medford District Resource Management Plan would be necessary. The analysis of environmental effects was designed to fully explore the consequences of such a decision. Thus, this EIS has the potential for resulting in an RMP amendment. This represents a change since the original Notice of Intent to conduct an EIS was published.

5.2 Planning Consistency

The Federal Land Policy and Management Act (FLPMA), Title II, Section 202, provides guidance for the land use planning system of the Bureau of Land Management (BLM) to coordinate planning efforts with Native American Indian tribes, other Federal departments, and agencies of the state and local governments. In order to accomplish this directive, the Bureau of Land Management is directed to keep informed of state, local, and tribal plans; assure that consideration is given to such plans; and to assist in resolving inconsistencies between such plans and Federal planning. The section goes on to state in Subsection c) (9) that *“Land use plans of the Secretary under this section shall be consistent with State and local plans to the maximum extent he finds consistent with Federal law and the purposes of this Act.”*

The provisions of this section of FLPMA are echoed in Section 1610.3 of the BLM Resource Management Planning regulations. In keeping with the provision of this section, state, local and tribal officials were made aware of the planning process through the previously described mailings and meetings.

According to Section 1610.4-7 of the Bureau of Land Management Resource Planning Regulations, the Draft Environmental Impact Statement is provided to the Governor, other Federal agencies, state and local governments, and Native American Indian tribes for comment. The resulting comments will be addressed in the final EIS. The formal 60-day consistency review by the Governor will occur

after the Draft EIS is published, as outlined in 1610.3-2(e) of the BLM Planning Regulations.

5.2.1 Federal Agencies

This Draft EIS is believed to be consistent with the following plans of other federal agencies:

- The Record of Decision on the 1994 *Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl*.
 - The Record of Decision on the 2000 *Supplemental Environmental Impact Statement for Amendment to the Survey and Management, Protection Buffer, and other Mitigation Measures Standard and Guidelines*.
 - The Forest Service's forest wide land and resource management plans for the adjacent Rogue River (1990) and Siskiyou (1993) National Forest.
 - National Resource Conservation Service watershed plans.
 - The Endangered Species Act and the following Fish and Wildlife Service plans:
 - Pacific Bald Eagle Recovery Plan
 - Final Draft Northern Spotted Owl Recovery Plan
 - Fish and Wildlife Service determination of critical habitat for the Northern Spotted Owl
 - Peregrine Falcon Recovery Plan
 - The Bonneville Power Administration's latest annual Transmission System Facilities Resource Program.
 - The Northwest Power Planning Council, Columbia River Basin, Fish and Wildlife Program, and subordinate species-specific strategies.
- Smoke Management Plan
 - Visibility Protection Plan and air quality policies
 - Prevention of Significant Deterioration requirements
 - Water Resources Department river basin programs for the Rogue River
 - Water Resources Commission rules and statutes
 - Department of Agriculture
 - Weed control plans
 - State-listed endangered plan species
 - Division of State Lands
 - Removal - Fill Law
 - Oregon Natural Heritage Program
 - Parks and Recreation Department
 - Statewide Comprehensive Outdoor Recreation Plan
 - State Parks and Recreation System Plan
 - State Recreation Trails Plan
 - State Historic Preservation Program
 - State Scenic Waterways Program and related projects
 - Department of Transportation, Highway Division
 - Oregon Highway Plan
 - Economic Development Department, Regional Economic Development Strategies

5.2.3 Local Government

The Oregon statewide planning program attached substantial importance to the coordination of federal plans with acknowledged local comprehensive plans. To the extent that BLM actions and programs are consistent with acknowledged county and city comprehensive plans and land use regulations, they can also be considered consistent with statewide planning goals. Local plans do not, however, address protection of Goal 5 values from the effects of forest management, as state law prohibits local government from regulating forest practices.

5.2.2 State Government

The Draft EIS is believed to be consistent with the following plans, programs, and policies of State of Oregon agencies:

- Department of Environmental Quality

5.3 Draft EIS Distribution List and Availability on the Internet

5.3.1 Distribution List

The Draft Environmental Impact Statement is being sent to the following individuals, groups, and organizations. The list includes elected officials; federal agencies; state and local government agencies; American Indian Tribes and Nations; libraries; organizations; and individuals.

5.3.1.1 Elected Officials

United States Senator Gordon Smith
United States Senator Ron Wyden
United States Representative Peter DeFazio
United States Representative Greg Walden
Coos County Commissioner Peter DeMain
Curry County Board of Commissioners
Josephine County Board of Commissioners
Douglas County Board of Commissioners

5.3.1.2 Federal Agencies

Department of Agriculture -
Forest Service
Siskiyou National Forest -
Forest Supervisor
Forest Biologist
Gold Beach Ranger District
Grants Pass
Umpqua National Forest-Tiller Ranger District
Natural Resource Conservation Service-
Josephine Soil and Water Conservation District
Department of Commerce-National Marine Fisheries Service
Department of Defense-U.S. Army Corps of Engineers
Department of Interior -
Bureau of Land Management
Coos Bay District
Roseburg District
Bureau of Reclamation
Fish and Wildlife Service-Oregon State Office
Geological Survey
Environmental Protection Agency -
EIS Filing Section

Region 10 Office
Federal Energy Regulatory Commission

5.3.1.3 State and Local Government Agencies

State of Oregon -
Department of Environmental Quality
Medford
Portland
Department of Fish & Wildlife -
Rogue District Office, Central Point
Gold Beach
Roseburg
Charleston
Department of Forestry -
Central Point Office
Coos Bay District
Roseburg Office
Merlin Office
Historic Preservation Office
Marine Board
Curry County-Fire Protection Agency
Douglas County-Fire Protection Agency
Josephine County-Forestry Department
City of Glendale
Rogue Valley Council of Governments
Umpqua Regional Council of Governments
University of Texas-Zoology Department

5.3.1.4 American Indian Tribes and Nations

Confederated Tribes of Grand Ronde
Confederated Tribes of Siletz
Confederated Tribes of the Rogue-Table Rock and Associated Tribes
Cow Creek Band of Umpqua Indians
Klamath Tribe
Quartz Valley Indian Reservation

5.3.1.6 Organizations

Benson Gulch Water Users' Association
Benton Mines, Inc./Dutch Mining LLC
Benton Mines, Inc./Lewis Investment Company
C and D Lumber Company
Friends of Oregon Living Waters
Galice Resort
Glendale CART
Headwaters
Indian Hill LLC
International Right-of-Way Association, Chapter 3
Klamath Siskiyou Wildlands Center
Lower Rogue Watershed Council

Larry Brown and Associates
Middle Rogue Watershed Council
Northwest Timber Affiliates, Inc.
Oregon Hunters Association-Rogue Valley Chapter
Oregon Natural Resources Council -
Eugene
Klamath Falls
Crescent City, CA
Oregon Ridge and River Excursions
Oregon Trout
Rocky Mountain Elk Foundation
Oregon Historic Trails Advisory Council
Riverhawks
Siskiyou Audubon Society
Siskiyou Project
Southern Oregon Timber Industry Association
Spaulding and Son, Inc.
Sundance Expeditions, Inc.
Sunny Wolf CRT
Superior Lumber Company
SW Miner's Association
Umpqua Basin Watershed Council
Umpqua Watersheds/Cow Creek Council
Up The Creek Resources
Western Utility Group

5.3.1.7 Individuals

Shelly Akina
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Bill and Leona Bazor
Howard and Ivy Beach
Norm and Buni Borreson
Bradley Boyden and Marie Del Toro
Frank and Jane Boyden
Charlie Boyer
Al and Debbie Brinkenhoff
Paul and Kathryn Brooks
Bob and Lori Brown
Dave and Mary Kay Byers
Ron and Carol Byrd
Gerald Casey
Pete and Betty Cazemire
Loran J. Cooper, Jr.
Bruce and Lori Crawford
Romain Cooper
Joe Cubic
Joel Despain
Jim and Florence Doty
Sherry Dwight
Barry and Kathy Eames
Tom and Gail Engles
Glenn and Diann Fly
Betty Fox
Larry Gaffney
Geoff Garcia

Betty Gaustad
Greg and Linda Gilpin
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BA and Lee Hanten
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Katherine Lysaght
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Brian McKnight
Warren Merz
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Boyd Peters
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Larry and Marie Smith
Monica Speltz
Richard Spotts
Chuck Steahly
Dave Stewart
Kindler Stout
Jack and Cheryl Strubel
Ron and Gwen Thomas
Gil and MariLou Thomason
Barbara Ullian
Jerry and Lynn Walker
Ken and Lynn Wegner
Forest Wilson
Dorothy Woodcock
Ronald Yockim

5.3.2 Internet Availability

The Draft Environmental Impact Statement (DEIS) will be available on the internet at <http://www.or.blm.gov/Medford/> when U.S. Department of the Interior internet service is authorized.

5.4 List of Preparers

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The Planning Team would like to additionally thank
the following people for their assistance in preparing
this Draft Management Plan and Draft
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Cindy Walker
Michelle Kohns
Joe Lint
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Cliff McClelland

Table 5-1. Consistency of Proposed Action Alternatives with State of Oregon Plans: Oregon Department of Fish and Wildlife

State Plan/Statute	Objective	Consistency of Alternatives
Oregon Statutory Wildlife Policy, Revised Statute 496.012	<p>Maintain all species of wildlife at optimum levels and prevent the serious depletion of any indigenous species.</p> <p>Develop and manage the lands and water of the state in a manner that will enhance the production and public enjoyment of wildlife.</p> <p>Develop and maintain public access to the lands and waters of the State and the wildlife resources thereon.</p> <p>Regulate wildlife populations and public enjoyment of wildlife in a manner that is compatible with primary uses of the lands and waters of the State and provide optimum public recreational benefits.</p>	<p>All alternatives meet the objectives of this statute. The Action Alternatives would have some short-term affects on population of species dependent on old-growth conifer forest, but these effects have been analyzed in the RMP.</p> <p>Public access would be maintained in all alternatives, except to short, dead end spur roads.</p> <p>The habitat management in all alternatives would be conducive to most wildlife populations. Alternative 4 would be most beneficial to late-successional species.</p>
Oregon Threatened and Endangered Species Act	Protect and conserve wildlife species that are determined to be threatened or endangered.	All State species found within the planning area are also federally listed under the Endangered Species Act. The protection of these species is common in all alternatives.
Oregon's Sensitive Species Rule	Help prevent species from qualifying for listing as threatened or endangered	Most species on Oregon's sensitive species list would be well protected under all alternatives.
Nongame wildlife	Plan to maintain populations of naturally occurring Oregon nongame wildlife at self-sustaining levels within natural geographic ranges in a manner which provides for optimum recreational, scientific and cultural benefits, and where possible, is consistent with primary uses of lands and waters of the State.	Most species on Oregon's nongame wildlife species would be well protected under all alternatives. Some localized adverse impacts would occur due to logging, but overall nongame wildlife populations and habitat would be maintained.

Table 5-1. Consistency of Proposed Action Alternatives with State of Oregon Plans: Oregon Department of Fish and Wildlife

State Plan/Statute	Objective	Consistency of Alternatives
Big Game Population Management Objectives	Develop, restore and/or maintain big game (along with associated recreation, aesthetic and commercial opportunities and benefits) at the level identified as the planning target level by game management unit. This is accomplished through hunting season regulation and implementation of multiple-use management practices on public lands that tend to stabilize the cover-forage relationship in space and time, provide for wildlife emphasis in management of sensitive wintering areas, and offer habitat improvement opportunities.	The habitat for big game would be enhanced to differing degrees through the different alternatives as logging would create new forage areas and road closures would reduce harassment. The Mule Creek subwatershed has been designated as an elk management area and open road densities have been reduced through gating roads. The DEIS would not affect this subwatershed.
Wild Fish Policy	Protect and enhance wild stocks	The Aquatic Conservation Strategy would provide adequate protection given the proposals in the action alternatives.
Coho, Steelhead and Trout Plans	Maintain and enhance production.	The maintenance and enhancement of aquatic habitat for these species is common in all alternatives. The Aquatic Conservation Strategy provides for protection of aquatic habitat.
Basin Fish Management Plans	Establish compatible objectives for management of all fish stocks in each basin. Present tasks for attaining objectives, described unacceptable management strategies, and set priorities on achievement.	The maintenance and enhancement of aquatic habitat for all fish stocks is common in all alternatives. The maintenance and enhancement of aquatic habitat for these species is common in all alternatives. The Aquatic Conservation Strategy provides for protection of aquatic habitat.

Table 5-2. Consistency of Proposed Action Alternatives with State of Oregon Plans: Oregon Department of Forestry		
State Plan/Statute	Objective	Consistency of Alternatives
Oregon Forest Practices Act Rules	Establish minimum standards which encourage and enhance the growing and harvesting of trees while considering and protecting other environmental resources such as air, water, soil, and wildlife	The harvest prescriptions and logging methods proposed in the action alternatives surpass the requirements of the Oregon Forest Practices Act Rules.
Forestry Program for Oregon – Forest Use.	Preserve the forest land base of Oregon. Stabilize the present commercial forest land base. Manage habitat based on sound research data and the recognition that forests are dynamic and most forest uses are compatible over time.	None of the alternatives propose any changes to the forest land base.
Forestry Program for Oregon – Timber Growth and Harvest	Promote the maximum level of sustainable timber growth and harvest on all forest lands available for timber production, consistent with applicable laws and regulations and taking into consideration landowner objectives.	The management emphases for lands within the planning area would be dictated by the land use allocations in the RMP. There would be very small change in land use allocation acreage in Alternatives 2 and 4 through designation of an Area of Critical Environmental Concern.
Forestry Program for Oregon – Recreation, Fish and Wildlife, Grazing, and other Forest Uses	Encourage appropriate opportunities for other forest uses, such as fish and wildlife habitat, grazing, recreation and scenic values on all forest lands, consistent with landowner objectives. A full range of recreational opportunities is encouraged. Where needed to reduce harassment and/or overharvest of wildlife, road closure programs are supported. Integration of sound grazing management practices compatible with timber management goals and wildlife habitat goals is encouraged	All alternatives provide opportunities for other forest uses. Recreation, wildlife habitat, fuels reduction, visual resource protection and other uses would be considered and managed consistent with RMP and state guidelines.
Forestry Program for Oregon – Forest Protection	Devise and use environmentally sound and economically efficient strategies to protect Oregon's forest from wildfire, insect, disease, and other damaging agents. Use integrated pest management. Employ cost-effective fire management policies that emphasize planned ignition fires over natural ignition fires and that consider impacts to the State's forest fire protection program.	Forest protection practices would continue under all alternatives. The fire suppression level would be modified in some areas to reduce adverse impacts to other resources, but forest protection would not suffer. The fuels reduction proposals in the action alternatives are designed to reduce fuel hazards in high priority areas.

Table 5-3. Consistency of Proposed Action Alternatives with State of Oregon Plans: Land Conservation and Development Commission and other agencies.

State Plan/Statute	Objective	Consistency of Alternatives
State Planning Goal 5	Open spaces, scenic and historical areas, and natural resources.	All alternatives conform with this goal as management proposals tier to the RMP which has already been determined to conform.
Statewide Planning Goals – Citizen Involvement	To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process. Federal and other agencies shall coordinate their planning efforts with the affected government bodies and make use of existing local citizen involvement programs established by cities and counties.	BLM's land use planning process provides for public input at various stages. Public input was specifically requested in developing issues. Public input will continue to be utilized in development of the final RMP. Coordination with affected government agencies, including the ODF and ODF&W, has been ongoing and will continue.
Statewide Planning Goals – Land Use Planning	To establish a land use process and policy framework as a basis for all decisions related to use of land and to assure an adequate factual base for such decisions and actions.	Alternatives in the DEIS have been developed in accordance with land use planning process authorized by the Federal Land Policy and Management Act of 1976 which provides a policy framework for all decisions and actions. This includes issue identification, inventories and evaluation of alternatives.
Statewide Planning Goals – Agricultural Lands	To preserve and maintain existing commercial agricultural lands for farm, consistent with existing and future needs for agricultural products, forest, and open space.	None of the alternatives affect the use of lands for agricultural use.

Table 5-3. Consistency of Proposed Action Alternatives with State of Oregon Plans: Land Conservation and Development Commission and other agencies.

State Plan/Statute	Objective	Consistency of Alternatives
<p>Statewide Planning Goals – Open Spaces, Scenic and Historic Areas, and Natural Resources</p>	<p>To conserve open space and protect natural and scenic resources.</p> <p>Programs shall be provided that will (1) insure open space; (2) protect scenic and historic areas and natural resources for future generations, and (3) promote healthy and visually attractive environments in harmony with the natural landscape character. The location, quality and quantity of the following resources shall be inventoried:</p> <p>Land needed or desirable for open space;</p> <ul style="list-style-type: none"> a) Mineral and aggregate resources; b) Energy sources; c) Fish and wildlife areas and habitats; d) Ecologically and scientifically significant natural area e) Outstanding scenic views and sites; f) Water areas, wetlands, watersheds, and ground water resources; g) Wilderness areas; h) Historic areas; i) Cultural areas; j) Potential and approved Oregon recreation trails; k) Potential and approved Federal wild and scenic waterways and state scenic waterways. <p>Where no conflicting uses for such resources have been identified, such resources shall be managed to preserve their original character. Where conflicting uses have been identified, the economic, social, environmental, and energy consequences of the conflicting uses shall be determined and programs developed to achieve the goal.</p>	<p>Natural, historic and visual resources were considered in the development of the alternatives. In this remote area with very little non-federal lands, there are no conflicts with open space objectives.</p>

Table 5-3. Consistency of Proposed Action Alternatives with State of Oregon Plans: Land Conservation and Development Commission and other agencies.

State Plan/Statute	Objective	Consistency of Alternatives
Statewide Planning Goals – Air, Water, and Land Resources Quality	To maintain and improve the quality if the air, water, and land resources of the state.	Federal and state water quality standards would be met, water quality would be maintained and/or improved under all alternatives. Burning vegetation slash under all alternatives would have slight temporary effect on air quality. All actions would comply with statewide Smoke Management Plan and the State Implementation Plan.
Statewide Planning Goals – Areas subject to Natural Disaster and hazards	To protect life and property from natural disaster and hazards.	No conflicts with natural disaster goals were identified. New road construction would be very limited and located in stable areas. Proposed harvest units were examined on the ground for instability.
Statewide Planning Goals – Recreational Needs	To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities, including destination resorts. Federal agency recreation plans shall be coordinated with local and regional recreational needs and plans.	Recreational opportunities would be maintained at present levels under all alternatives. Recreational demand is very limited in this remote area, except along the Rogue River corridor, which would not be affected by any of the alternatives.
Statewide Planning Goals – Economy of the State	To diversify and improve the economy of the state.	The alternatives would not change the economic contribution of these lands from those disclosed in the RMP.
Statewide Planning Goals – Public Facilities and Services	To plan and develop a timely, orderly, and efficient arrangement of public facilities and services to serve as a framework for urban and rural development	No need for additional public facilities was identified for this planning area.
Statewide Planning Goals – Transportation	To provide and encourage a safe, convenient and economical transportation system.	The alternatives would maintain the existing transportation system, with minor changes by constructing two new road segments in Alternative 1 and decommissioning 10-15 miles of existing dead end spur roads under various alternatives. Access to private lands and existing rights would be maintained
Statewide Planning Goals – Energy Conservation	To conserve energy.	No conflicts with conservation and efficient use of energy sources were identified. No opportunities for additional contributions to energy conservation were identified.

Table 5-3. Consistency of Proposed Action Alternatives with State of Oregon Plans: Land Conservation and Development Commission and other agencies.

State Plan/Statute	Objective	Consistency of Alternatives
Statewide Planning Goals – Air, Water, and Land Resources Quality	To maintain and improve the quality of the air, water, and land resources of the state.	Federal and state water quality standards would be met, water quality would be maintained and/or improved under all alternatives. Burning vegetation slash under all alternatives would have slight temporary effect on air quality. All actions would comply with statewide Smoke Management Plan and the State Implementation Plan.
Statewide Planning Goals – Areas subject to Natural Disaster and hazards	To protect life and property from natural disaster and hazards.	No conflicts with natural disaster goals were identified. New road construction would be very limited and located in stable areas. Proposed harvest units were examined on the ground for instability.
Statewide Planning Goals – Recreational Needs	To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities, including destination resorts. Federal agency recreation plans shall be coordinated with local and regional recreational needs and plans.	Recreational opportunities would be maintained at present levels under all alternatives. Recreational demand is very limited in this remote area, except along the Rogue River corridor, which would not be affected by any of the alternatives.
Statewide Planning Goals – Economy of the State	To diversify and improve the economy of the state.	The alternatives would not change the economic contribution of these lands from those disclosed in the RMP.
Statewide Planning Goals – Public Facilities and Services	To plan and develop a timely, orderly, and efficient arrangement of public facilities and services to serve as a framework for urban and rural development	No need for additional public facilities was identified for this planning area.
Statewide Planning Goals – Transportation	To provide and encourage a safe, convenient and economical transportation system.	The alternatives would maintain the existing transportation system, with minor changes by constructing two new road segments in Alternative 1 and decommissioning 10-15 miles of existing dead end spur roads under various alternatives. Access to private lands and existing rights would be maintained
Statewide Planning Goals – Energy Conservation	To conserve energy.	No conflicts with conservation and efficient use of energy sources were identified. No opportunities for additional contributions to energy conservation were identified.